STONYHURST COLLEGE OBSERVATORY.

Results of Meteorological

AND

Magnetical Observations,

WITH

REPORT AND NOTES OF THE DIRECTOR.

1899.

STONYHURST COLLEGE OBSERVATORY,
LANCASHIRE.

With FATHER SIDGREAVES'
COMPLIMENTS.

STONYHURST COLLEGE OBSERVATORY.

RESULTS

OF

METEOROLOGICAL & MAGNETICAL OBSERVATIONS

WITH REPORT AND NOTES OF THE DIRECTOR,

REV. W. SIDGREAVES, S.J., F.R.A.S.

1899.

CLITHEROE:
PRINTED BY PARKINSON AND BLACOW, TIMES OFFICE.
1900.

TABLE OF CONTENTS.

REPORT AND NOTES.

THE meteorological and magnetical instruments have been in continuous operation throughout the year; and the usual reports have been despatched regularly. A special report of rainfall from 1871 to 1898, was prepared for the Meteorological Office, and the expense of the work has been borne by the same Office.

The mean temperature of the year was 1°·1 above the average. The relatively warm months of the year were January, February, June, July, August, and November. Of these, August and November were the most remarkable, their mean temperatures being respectively 4°·3 and 5°·3 above the averages. The warmest days, when the shade temperature reached 80° and over, were registered two in the middle of June, one on the last day of July, and nine in August; and the highest of these was 85°·9 on August 2nd.

The sunshine record shows 184 hours of bright sunshine in excess of the annual average. This excess was divided between June, August, and October.

The rainfall was nearly half-an-inch above the average, owing mostly to the excessive falls in January and September, when the amounts were 3·1 and nearly 4·5 inches above those monthly averages.

The deep barometric depression at the end of December was accompanied by much rain, but no strong wind. The barometer reached its lowest reading, 27·995, at 6-30 p.m. on the 29th, in a comparative calm, or very light easterly winds. The calm lasted 25 hours from the preceding midnight, and the wind changed from a moderate breeze, N.E. before the calm, to the same force S.W., after the calm.

The solar surface drawings number 183, on as many days, during the year. Of these, 128 sheets are drawings of spots and faculæ, and the remaining 55 show only small spots as dots and some faculæ. The mean daily disc-area, deduced from the whole number of drawings, is 0·7, against 2·5 units* of the preceding year; and, dividing the year into two parts, Jan. 1—July 16, and July 17—Dec. 31, the mean areas are 1·1 and 0·2 respectively; which seems to show a near approach to the minimum period of solar activity at the end of the year 1899.

Comparing these spot-areas with earth magnetic disturbances, it is worthy of remark that of the seven days in the year, noted for greater magnetic disturbances, four occurred in the two periods of the greatest spot-areas of the year, in the middle of March, and at the end of June; and the remaining three occurred in very quiet periods in January, February ,and May.

* One five-thousandth of disc area.

The grating spectrographs of the HK region of the solar spectrum number 162 on 81 days. On 67 of these days the plates are strong enough to show the intensities of the reversals. There is no marked difference between the results of this and of the preceding year: but both collections are waiting for comparison with similar plates of a future period of greater solar activity.

Considerable preparations were made for the possible Leonid-meteor shower. Five cameras were mounted for the meteor streaks; and one was attached to the eye-end of the Perry Memorial telescope, with the hope of obtaining a photograph of the meteor-swarm as a cluster or comet outside our atmosphere. This was the chief hope of the watch on the morning of the 16th November, for which Dr. Johnstone Stoney had kindly provided the position of the sight-line tangent to the meteor-orbit. Unfortunately, the sky, though clear enough for eye-observations of meteors to the third magnitude, was too hazy for the feeble light from the distant swarm. Only a few Leonids were seen on this morning; and the preceding nights from the 10th to the 14th inclusive were cloudy throughout.

The stellar spectrograph has been employed on all available nights, to continue the series of photographs intended for investigation of possible changes in the spectra of selected stars. But the work of measuring and mapping these has been interrupted by a corresponding work on the solar drawings of the last 19 years.

WALTER SIDGREAVES, S.J.

Stonyhurst Observatory.

Lat. 53° 50′ 40″N. Long. 9m. 52s. 68. W. Height of the Barometer above the sea 381ft.

METEOROLOGICAL REPORT.

JANUARY, 1899.

Results of Observations taken during the Month.		Mean for the last 52 years.
Mean Reading of the Barometer....inches	29·333	29·451
Highest ,, on the 26th ,,	30·346	30·281
Lowest ,, on the 2nd ,,	28·365	28·595
Range of Barometer Readings..... ,,	1·981	1·686
Highest Reading of a Max. Therm on the 21st	53·1	51·4
Lowest Reading of a Min. Therm. on the 27th	20·0	20·6
Range of Thermometer Readings	33·1	30·8
Mean of all the Highest Readings	44·9	42·3
Mean of all the Lowest Readings	33·8	32·5
Mean Daily Range	11·1	9·8
Deduced Monthly Mean (from Mean of Max. and Min.)	39·2	37·1
Mean Temperature from Dry Bulb	39·9	37·2
Adopted Mean Temperature.....	39·6	37·1
Mean Temperature of Evaporation	38·0	36·0
Mean Temperature of Dew Point	35·9	33·8
Mean elastic force of Vapour..... inches	0·211	0·196
Mean weight of Vapour in a cub.ft.of air grains	2·4	2·4
Mean additional weight required for saturation,,	0·4	0·4
Mean degree of Humidity (saturation 1·00) ..	0·87	0·86
Mean weight of a cubic foot of air .... grains	544·7	549·7
Fall of Rain..... inches	7·209	4·100
Number of days on which Rain fell	24	20.6

JANUARY, 1899.

No. of days in the month on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	3	4	0	4	3	8	8	1
Mean Velocity in miles per hour	3·5	4·6	0	7·8	13·6	14·7	13·7	9·9
Total No. of miles for each Direction	250	444	0	752	978	2820	2626	238

The total No. of miles registered during the month was 8108.

The max. Velocity of the wind was 63 miles per hour, W., on the 12th at 5-30 and 6-0 p.m.

Mean amount of Cloud (an overcast sky being indicated by 10 0)			8·4
In the month of January the highest reading of the Barometer during 52 years, was on the 9th, in 1896, and was.....			30·597
The Lowest ,,	26th, 1884	,, ...	27·803
The highest Temperature	7th, 1887	,, ...	59·9
The lowest ,,	15th, 1881	,, ...	4·6
The highest adopted mean temperature of the month,		1898	43·7
The lowest ,, ,,		1881	29·2
Greatest fall of rain for the month in		1852	8·147 in
Least ,, ,,		1881	0·472 in
Greatest number of days on which rain fell		1872	31
Least ,, ,,		1879	8

Table of Differences.

The signs + and — mean respectively above and below the monthly average.

Mean barometric pressure	—	0·118	inches
Monthly range ,, ...	+	0·295	,,
Mean of highest temperatures	+	2·6	degrees
Mean of lowest ,, ...	+	1·3	,,
Mean daily range ,, ...	+	1·3	,,
Adopted mean temperature	+	2·5	,,
Total rainfall	+	3·109	inches

Ground Frost on 1st—3rd, 5th, 6th, 11th—14th, 17th, 18th, 22nd—31st. Hoar Frost on 25th. Hail on 1st, 2nd, 11th, 16th. and 19th. Snow on 1st, 2nd, 11th, 17th, 18th, and 29th. Gales of Wind on 12th and 21st. Heavy Rain 1st, 15th, 17th, 18th, 20th and 21st.

FEBRUARY, 1899.

Results of Observations taken during the Month		Mean for the last 52 years.
Mean Reading of the Barometer..... inches	29·423	29·516
Highest ,, on the 28th ,,	30·224	30·073
Lowest ,, on the 13th ,,	28·535	28·702
Range of Barometer Readings ..... ,,	1·689	1·371
Highest Reading of a Max. Therm.on the 10th	55·6	52·2
Lowest Reading of a Min. Therm. on the 26th	22·7	22·3
Range of Thermometer Readings	32·9	29·9
Mean of all the Highest Readings.....	46·3	44·3
Mean of all the Lowest Readings	33·8	33·4
Mean Daily Range	12 5	10·9
Deduced Monthly Mean (from Mean of Max. and Min.)	39·7	38·3
Mean Temperature from Dry Bulb	39·6	38·3
Adopted Mean Temperature	39·7	38·3
Mean Temperature of Evaporation.....	37·5	36·8
Mean Temperature of Dew Point	34·6	34·6
Mean elastic force of Vapour .....inches	0·202	0·193
Mean weight of Vapour in a cub. ft. of air grains	2·3	2·4
Mean additional weight required for saturation,,	0·5	0·4
Mean degree of Humidity (saturation 1·00) ..	0·82	0·87
Mean weight of a cubic foot of air ....grains	546·4	549·0
Fall of rain .....inches	2·163	3·500
Number of Days on which rain fell	14	18·1

No. of days in the month on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	4	3	5	0	8	6	2	0
Mean Velocity in miles per hour	4·2	4·2	12·1	0	12·6	12·1	3·1	0
Total No. of miles for each Direction	406	304	1454	0	2417	1744	147	0

The total number of miles registered during the month was 6472.
The max. Velocity of the wind was 40 miles per hour, S.W. by S. on the 9th, at 11 p.m.

FEBRUARY, 1899.

Mean amount of Cloud (an overcast sky being indicated by 10·0)			6·6
In the month of February, the highest reading of the Barometer during 52 years, was on the 11th, in 1849, and was			..30·452
The lowest	,,	6th, 1867	,, ...28·208
The highest Temperature		8th, 1877	,, ... 58·3
The lowest	,,	18th, 1895	,, ... 8·0
The highest adopted mean temperature of the month,			1869.. 44·0
The lowest	,,	,,	1855.... 28·6
Greatest fall of rain for the month in			1848 8·882in
Least	,,	,, ,,	1858 0·306 in
Greatest number of days on which rain fell			1868 28
Least	,,	,, ,,	1858 and '95 6

Table of Differences.

The signs + and — mean respectively above and below the monthly average.

Mean barometric pressure	.. ..	—	0·093 inches
Monthly range ,,	.. ..	+	0·318 ,,
Mean of highest temperatures	.. ..	+	2·0 degrees
Mean of lowest ,,	.. ..	+	0·4 ,,
Mean daily range ,,	.. ..	+	1·6 ,,
Adopted mean temperature	.. ..	+	1·4 ,,
Total rainfall ,,	.. ..	—	1·337 inches

Ground Frost on the 1st—7th, 13th, 15th, 16th, 17th, 21st—28th. Snow on 1st, 2nd, 4th, 6th. Fog on 16th. Lighting on 8th. Aurora Borealis on 12th. Lunar Halo on 15th. Heavy rain on 9th. Gale of wind on 9th.

MARCH, 1899.

Results of Observations taken during the Month.			Mean for the last 52 years.
Mean Reading of the Barometer	inches	29·612	29·463
Highest ,, on the 1st ,,		30·224	30·068
Lowest ,, on the 9th ,,		28·496	28·659
Range of Barometer Readings	,,	1·728	1·409
Highest Reading of Max. Therm. on the 16th		63·6	57·3
Lowest Reading of a Min. Therm. on the 23rd		16·0	22·4
Range of Thermometer Readings		47·6	34·9
Mean of all the Highest Readings		49·8	47·3
Mean of all the Lowest Readings		33·1	34·0
Mean Daily Range		16·7	13·3
Deduced Monthly Mean (from Mean of Max. and Min.)		40·5	39·8
Mean Temperature from Dry Bulb		40·4	40·0
Adopted Mean Temperature		40·5	39·9
Mean Temperature of Evaporation		38·4	38·0
Mean Temperature of Dew Point		35·7	35·4
Mean elastic force of Vapour	inches	0·210	0·206
Mean weight of Vapour in a cub. ft. of air	grains	2·4	2·4
Mean additional weight required for saturation,,		0·5	0·5
Mean degree of Humidity (saturation 1·00)..		0·84	0·85
Mean weight of a cubic foot of air	grains	549·1	546·4
Fall of rain	inches	3·842	3·313
Number of days on which rain fell.....		15	18·1

	N	NE	E	SE	S	SW	W	NW
No. of days in the month on which the prevailing wind was	6	2	0	0	2	6	14	1
Mean velocity in miles per hour	7·9	8·9	0	0	11·7	10 4	12·1	12·4
Total No. of miles for each Direction	1137	427	0	0	562	1492	4071	297

The total number of miles registered during the month was 7986.
The max. Velocity of the wind was 45 miles per hour, W.S.W , on the 29th at 3-0 p.m.

MARCH, 1899.

Mean amount of Cloud (an overcast sky being indicated by 10·0)			7·0
In the month of March, the highest reading of the Barometer during 52 years, was on the 6th in 1852, and was			30·401
The lowest ,,	3rd, 1897	,,	28·157
The highest Temperature ,,	25th, 1871	,,	68·0
The lowest ,, ,,	6th, 1886	,,	11·5
The highest adopted mean temperature of the month,	1871	..	44·0
The lowest ,, ,,	1855 and 1892	..	35·6
Greatest fall of rain during the month in	..	1896..	7·079 in
Least ,, ,,	..	1852..	0·352 in
Greatest number of days on which rain fell,	1859, 61, 68 & 72		28
Least ,, ,,	..	1852..	3

Table of Differences.

The signs + and — mean respectively above and below the monthly average.

Mean barometric pressure ..	+	0·149 inches
Monthly range ,, ...	+	0·319 ,,
Mean of highest temperature ..	+	2·5 degrees
Mean of lowest ,, ...	—	0·9 ,,
Mean daily range ,, ...	+	3·4 ,,
Adopted mean temperature	+	0·6 ,,
Total rainfall	+	0·529 inches

Ground frost on the 1st—7th, 9th, 10th, 12th, 13th, 16th—27th. Snow on the 4th, 18th—21st, 23rd, and 25th. Hail on the 7th. Heavy rain on the 25th and 30th. Gales of wind on the 28th and 29th.

APRIL, 1899.

Results of Observations taken during the Month.		Mean for the last 52 years
Mean Reading of the Barometer ..... inches	29·359	29·485
Highest ,, on the 22nd ,,	29·860	29·964
Lowest ,, on the 13th ,,	28·592	28·810
Range of Barometer Readings ,,	1·268	1·154
Highest Reading of a Max. Therm. on the 27th	60·8	65·9
Lowest Reading of a Min. Therm. on the 17th	26·5	28·0
Range of Thermometer Readings	34·3	37·9
Mean of all the Highest Readings.....	52·7	55.8
Mean of all the Lowest Readings.....	37·3	37·8
Mean Daily Range.....	15·4	18·0
Deduced Monthly Mean (from Mean of Max. and Min.)	43·5	44·5
Mean Temperature from Dry Bulb.....	44·8	44·6
Adopted Mean Temperature.....	44·2	44·6
Mean Temperature of Evaporation	41·6	41·7
Mean Temperature of Dew Point	38·5	38·2
Mean elastic force of Vapour .....inches	0·234	0·236
Mean weight of Vapour in a cub. ft. of air grains	2·7	2·7
Mean additional weight required for saturation,,	0·6	0 7
Mean degree of Humidity (saturation 1·00) ...	0·80	0·80
Mean weight of a cubic foot of air... grains	540·2	542·0
Fall of Rain ..... inches	4·287	2·384
Number of days on which rain fell	22	15·8

No. of days in the month on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	4	2	0	1	3	3	15	2
Mean Velocity in miles per hour	8·8	9·3	0	14·8	14·6	6·0	12·7	13·9
Total No. of miles for each Direction.	840	446	0	355	1048	435	4579	665

The total No. of miles registered during the month was 8368. The max. Velocity of the wind was 36 miles per hour, W.S.W. on the 5th at 9·0 a.m.

APRIL, 1899.

Mean amount of Cloud (an overcast sky being indicated by 10·0)			8·7
In the month of April, the highest reading of the Barometer during 52 years, was on the 17th, in 1887, and was.....			30·251
The lowest ,, 20th, 1868 ,, ...			28·358
The highest Temperature 14th, 1852 ,, ...			74·1
The lowest ,, 13th, 1892 ,, ...			20·8
The highest adopted mean temperature of the month, 1865....			48·5
The lowest ,, ,,	1879		40·7
Greatest fall of rain during the month in	1867		5·672 in
Least ,, ,,	1852		0·478 in
Greatest number of days on which rain fell	1867		26
Least ,, ,,	1852		3

Table of Differences.

The signs + and — mean respectively above and below the monthly average.

Mean barometric pressure	—	0·126 inches
Monthly range ,, ...	+	0·114 ,,
Mean of highest temperatures	—	3·1 degrees
Mean of lowest ,, ..	—	0·5 ,,
Mean daily range ,, ...	—	2·6 ,,
Adopted mean temperature	—	0·4 ,,
Total rainfall	+	1·903 inches

Ground frost on 8th, 9th, 11th, 12th, 13th, 16th—18th, 21st and 23rd, 27th and 30th. Snow on 8th, 11th, 16th, 17th and 18th. Heavy rain on 9th. Hail on 8th, 11th, and 16th. Thunder on 7th, 13th, and 20th.

MAY, 1899.

Result of Observations taken during the Month.		Mean for the last 52 years
Mean Reading of the Barometer..... inches	29·601	29·517
Highest ,, on the 6th ,,	30·117	29·958
Lowest ,, on the 15th ,,	28·947	28·947
Range of Barometer Readings..... ,,	1·170	1·011
Highest Reading of a Max. Therm. on the 31st	72·5	72·1
Lowest Reading of a Min. Therm. on the 3rd	30 1	31·3
Range of Thermometer Readings	42.4	40·8
Mean of all the Highest Readings.....	58 7	59·8
Mean of all the Lowest Readings	40·3	42·0
Mean Daily Range	18·4	17·8
Deduced Monthly Mean (from Mean of Max. and Min.).....	47·8	49·1
Mean Temperature from Dry Bulb	48·5	49·6
Adopted Mean Temperature	48·2	49·3
Mean Temperature of Evaporation.....	44·4	46·1
Mean Temperature of Dew Point	40·2	42·5
Mean elastic force of Vapour .....inches	0·249	0·275
Mean weight of Vapour in a cub. ft. of air grains	2·9	3·1
Mean additional weight required for saturation,,	1·0	0 9
Mean degree of Humidity (saturation 1·00) ..	0 74	0·76
Mean weight of a cubic foot of air.... grains	540·2	537·2
Fall of Rain .....inches	3·437	2 646
Number of days on which Rain fell.....	17	15 4

No. of days in the month on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	4	10	5	0	3	4	5	0
Mean Velocity in miles per hour	4·4	7·4	7 1	0	14·7	6·6	11·0	0
Total No. of miles for each Direction	427	1764	846	0	1059	629	1323	0

The total number of miles registered during the month was 6048.
The max. Velocity of the wind was 40 miles per hour, S., on on the 18th at Noon.

MAY, 1899.

Mean amount of Cloud (an overcast sky being indicated by 10·0			7·7
In the month of May, the highest reading of the Barometer during 52 years, was on the 2nd in 1895, and was			30·217
The lowest ,,	28th, 1877	,,	28·559
The highest Temperature	19th, 1864	,,	82·5
The lowest ,,	4th, 1855	,,	23·5
The highest adopted mean temperature of the month,		1848	55·1
The lowest ,,	,,	1855	45·0
Greatest fall of rain during the month in		1886	6·224in
Least ,,	,,	1859	0 249in
Greatest number of days on which rain fell		1872	28
Least ,,	,,	1853 and 1896	5

Table of Differences.

The signs + and — mean respectively above and below the monthly average.

Mean barometric pressure	+	0·084	inches
Monthly range ,, ...	+	0·159	,,
Mean of highest temperatures ..	—	1·1	degrees
Mean of lowest ,, ...	—	1·7	,,
Mean daily range ,, ...	+	0·6	,,
Adopted Mean temperature	—	1·1	,,
Total rainfall	+	0·791	inches

Ground Frost on 3rd—7th, 26th, 27th and 28th. Hail on 16th. Thunderstorm 23rd. Distant Thunder on 23rd and 24th. Heavy Rain 23rd. Gale of Wind on 18th.

JUNE, 1899.

Results of Observations taken during the Month.		Mean for the last 52 years.
Mean Reading of the Barometer.....inches	29·660	29·547
Highest ,, on the 8th ,,	30·082	29·500
Lowest ,, on the 20th ,,	28·933	29·031
Range of Barometer Readings..... ,,	1·149	0·869
Highest Reading of a Max. Therm. on the 17th	81·5	77 6
Lowest Reading of a Min. Therm. on the 13th	37·5	38 8
Range of Thermometer Readings	44·0	38 8
Mean of all the Highest Readings	70·3	66 0
Mean of all the Lowest Readings	49·0	48 0
Mean Daily Range	21·3	18·0
Deduced Monthly Mean (from Mean of Max. and Min.)	57·9	55·1
Mean Temperature from Dry Bulb.....	59·6	55·3
Adopted Mean Temperature.....	58·8	55·2
Mean Temperature of Evaporation	53·7	52·1
Mean Temperature of Dew Point	49·2	48 7
Mean elastic force of Vapour .....inches	0·350	0·354
Mean weight of Vapour in a cub. ft. of air grains	3·9	3·9
Mean additional weight required for saturation ,,	1·6	1 0
Mean degree of Humidity (saturation 1·00) ..	0·71	0·78
Mean weight of cubic foot of air ....grains	530·5	531·2
Fall of Rain .....inches	1·780	3·544
Number of days on which Rain fell	10	16·5

No. of days in the month on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	2	2	10	0	1	1	14	0
Mean Velocity in miles per hour	5·7	5·9	7·1	0	7·2	6·7	7·8	0
Total No. of miles for each Direction	274	283	1711	0	172	160	2626	0

The total number of miles registered during the month was 5226.
The max. Velocity of the wind was 24 miles per hour, W. N. W., on the 24th at 1·0 p.m.

JUNE, 1899.

Mean amount of Cloud (an overcast sky being indicated by 10·0)			5 9
In the month of June, the highest reading of the Barometer during 52 years, was on the 15th, in 1874, and was			.....30·219
The lowest	,, 23rd, 1893	,,	.....28·813
The highest Temperature	18th, 1893	,,	..... 88 7
The lowest	,, 17th, 1892	,,	..... 34·1
The highest adopted mean temperature of the month, 1858 ..			59 0
The lowest	,, ,,	1856 and 1860..	52·2
Greatest fall of rain during the month in		1848	7·125 in
Least	,, ,,	1887	0·525 in
Greatest number of days on which rain fell		1862	27
Least	,, ,,	1887	4

The signs + and — mean respectively above and below the monthly average.

Mean barometric pressure	..	+	0·113 inches
Monthly range ,,	..	+	0·280 ,,
Mean of highest temperatures	..	+	4·3 degrees
Mean of lowest ,,	..	+	1·0 ,,
Mean daily range ,,	..	+	3·3 ,,
Adopted mean temperature	..	+	3·6 ,,
Total rainfall	..	—	1·764 inches

Thunder on the 10th and 20th. Thunderstorm on 28th. Heavy rain on 28th and 30th.

JULY, 1899.

Results of Observations taken during the Month.		Mean for the last 52 years.
Mean Reading of the Barometer .....inches	29·664	29·511
Highest ,, on the 31st ,,	30·050	29·887
Lowest ,, on the 1st ,,	28·993	29·003
Range of Barometer Readings..... ,,	1·057	0·884
Highest Reading of a Max. Therm. on the 31st	80·0	78·7
Lowest Reading of a Min. Therm. on the 8th	44·8	42·1
Range of Thermometer Readings	35·2	36·6
Mean of all the Highest Readings	70·0	68·0
Mean of all the Lowest Readings.....	52·5	50·7
Mean Daily Range.....	17·5	17·3
Deduced Monthly Mean (from Mean of Max. and Min.)	59·4	57·8
Mean Temperature from Dry Bulb.....	60·0	57 8
Adopted Mean Temperature	59·7	57·8
Mean Temperature of Evaporation	56·6	54·8
Mean Temperature of Dew Point	53·9	52·1
Mean elastic force of Vapour..... inches	0·416	0·389
Mean weight of Vapour in a cub.ft.of air grains	4·6	4·5
Mean additional weight required for saturation,,	1·1	1·0
Mean degree of Humidity (saturation 1·00)..	0·82	0·81
Mean weight of a cubic foot of air.... grains	528·8	527·5
Fall of Rain..... inches	2·983	4·115
Number of Days on which rain fell.....	14	18·0

No. of days in the month on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	0	2	2	0	3	3	21	0
Mean Velocity in miles per hour	0	8·4	9·2	0	7·7	7·9	8·7	0
Total No. of miles for each Direction	0	405	441	0	553	570	4376	0

The total number of miles registered during the month was 6345.
The max. Velocity of the wind was 29 miles per hour, W.S.W., on the 26th at 6·0 a.m.

JULY, 1899.

Mean amount of Cloud (an overcast sky being indicated by 10·0)			8 0
In the month of July, the highest reading of the Barometer during 52 years, was on the 24th, in 1868, and was.....			30·112
The lowest ,,	15th, 1877	,, ...	28·564
The highest Temperature	22nd, 1873	,, ...	88·2
The lowest ,,	1st, 1857	,, ...	36 0
The highest adopted mean temperature of the month,		1852	63 0
The lowest ,,	,,	1888	54·5
Greatest fall of rain during the month in ...		1888	8·602 in
Least ,, ,, ...		1868	0·669 in
Greatest number of days on which rain fell ...		1861	30
Least ,, ,, ...		1868	9

Table of Differences.

The signs + and — mean respectively above and below the monthly average.

Mean barometic pressure ...	+	0·153	inches
Monthly Range ,, ...	+	0·173	,,
Mean of highest temperature ...	+	2·0	degrees
Mean of lowest ,, ...	+	1 8	,,
Mean daily range ,, ...	+	0·2	,,
Adopted mean temperature ...	+	1·9	,,
Total rainfall	—	1·132	inches

Thunder on 1st, 3rd, 6th and 12th. Lightning on 3rd and 20th. Heavy rain on the 1st.

AUGUST, 1899.

Results of Observations taken during the Month.		Mean for the last 52 years.
Mean Reading of the Barometer ..... inches	29·685	29·492
Highest ,, on the 1st ,,	30·021	29·885
Lowest ,, on the 31st ,,	29·205	28·957
Range of Barometer Readings ..... ,,	0·816	0·928
Highest Reading of a Max. Therm. on the 2nd	85 9	77·3
Lowest Reading of a Min. Therm. on the 8th	45·8	41·4
Range of Thermometer Readings.....	40·1	35·9
Mean of all the Highest Readings.....	73·7	67·4
Mean of all the Lowest Readings.....	52·2	50·5
Mean Daily Range.....	21·5	16·9
Deduced Monthly Mean (from Mean of Max. and Min.).....	61·3	57·2
Mean Temperature from Dry Bulb	62·0	57·6
Adopted Mean Temperature	61·7	57·4
Mean Temperature of Evaporation	58·7	54·6
Mean Temperature of Dew Point	56·2	51·9
Mean elastic force of Vapour .....inches	0·452	0·388
Mean weight of Vapour in a cub.ft.of air grains	5·0	4·3
Mean additional weight required for saturation,,	1·2	0·9
Mean degree of Humidity (saturation 1·00)..	0·83	0·82
Mean weight of a cubic foot of air..grains	526·5	527·3
Fall of Rain ..... inches	2·360	5·093
Number of days on which Rain fell	13	19 9

No. of days in the month on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	9	6	3	1	1	1	10	0
Mean Velocity in miles per hour	4·8	8·5	6·9	8·4	7·0	7·9	8·4	0
Total No. of miles for each Direction	1034	1219	500	201	168	190	2011	0

The total number of miles registered during the month was 5323.
The max. Velocity of the wind was 27 miles per hour, W. on the 17th, at Noon.

AUGUST, 1899.

Mean amount of Cloud (an overcast sky being indicated by 10·0)			6·6
In the month of August, the highest reading of the Barometer during 52 years, was on the 21st, in 1874, and was			30·114
The lowest ,, 31st, 1876 ,, ...			28 555
The highest Temperature 2nd, 1868 ,, ...			88·0
The lowest ,, 13th, 1887 ,, ...			33·4
The highest adopted mean temperature of the month,		1899	61·7
The lowest ,, ,,		1848	52·5
Greatest fall of rain during the month in		1891	9·869 in
Least ,, ,,		1871	2·085 in
Greatest number of days on which rain fell		1860	28
Least ,, ,,		1880	6

Table of Differences.

The signs + and — mean respectively above and below the monthly average.

Mean barometric pressure	+	0·193	inches
Monthly range ,, ...	—	0·112	,,
Mean of highest temperatures ..	+	6·3	degrees
Mean of the lowest ,, ...	+	1·7	,,
Mean daily range ,, ...	+	4·6	,,
Adopted mean temperature	+	4·3	,,
Total rainfall	—	2·733	inches

The highest adopted mean temperature for the month of August during the last 52 years occurred this year, and was 61·7. Thunder on 4th, 6th, 27th, 28th, 29th and 31st. Lightning on 4th, 5th, 6th, 27th and 29th. Lunar Halo 19th. Heavy Rain on 29th.

SEPTEMBER, 1899.

Results of Observations taken during the Month.		Mean for the last 52 years
Mean Reading of the Barometer .... inches	29·387	29·518
Highest ,, on the 10th	29·824	30·024
Lowest ,, on the 30th	28·837	28·852
Range of Barometer Readings	0·987	1·172
Highest Reading of a Max. Therm. on the 5th	75·5	72·7
Lowest Reading of a Min. Therm. on the 27th	32·9	36·3
Range of Thermometer Readings	42·6	36·4
Mean of all the Highest Readings	62·6	62·4
Mean of all the Lowest Readings	45·4	47·0
Mean Daily Range	17·2	15·4
Deduced Monthly Mean (from Mean of Max. and Min.)	52·7	53·5
Mean Temperature from Dry Bulb.....	54·1	54·1
Adopted Mean Temperature	53·4	53·8
Mean Temperature of Evaporation	50·4	51·0
Mean Temperature of Dew Point	47·4	48·3
Mean elastic force of Vapour ..... inches	0·327	0·339
Mean weight of Vapour in a cub.ft.of air grains	3·7	4·0
Mean additional weight required for saturation,,	0·9	0·8
Mean degree of Humidity (saturation 1·00)..	0·80	0·82
Mean weight of a cubic foot of air....grains	530·3	532·2
Fall of Rain ..... inches	9·139	4·663
Number of days on which Rain fell	23	18·9

	N	NE	E	SE	S	S W	W	NW
No. of days in the month on which the prevailing wind was	0	2	2	0	1	4	21	0
Mean Velocity in miles per hour	0	4·5	7·3	0	7·7	8 6	12 8	0
Total No. of miles for each Direction.	0	217	348	0	184	821	6429	0

The total number of miles registered during the month was 7999.
The max. Velocity of the wind was 38 miles per hour on the 18th and 22nd, W. by S., at 1 p.m.

SEPTEMBER, 1899.

Mean amount of Cloud (an overcast sky being indicated by 10·0)		7·6
In the month of September, the highest reading of the Barometer during 52 years, was on the	15th, in 1851, and was	30·274
The lowest ,,	25th, 1896 ,,	...28·314
The highest Temperature	6th, 1868 ,, ...	85·0
The lowest ,,	25th, 1885, and 30th, 1888...	29·8
The highest adopted mean temperature of the month,	1865 ...	59·1
The lowest ,, ,,	1863 ...	50·9
Greatest fall of rain during the month in ..	1869	9·539in
Least ,, ,, ..	1894	0·801in
Greatest number of days on which rain fell ..	1866	30
Least ,, ,	1851 and 1894	6

Table of Differences.

The signs + and — mean respectively above and below the monthly average.

Mean barometric pressure	—	0·131 inches
Monthly range	—	0·185 ,,
Mean of highest temperatures	+	0·2 degrees
Mean of lowest ,, ...	—	1·6 ,,
Mean daily range ,, ...	+	1·8 ,,
Adopted mean temperature	—	0·4 ,,
Total rainfall	+	4·476 inches

Ground Frost on the 15th, 28th, and 29th. Hail on the 20th, 22nd, 26th, and 27th. Thunder on the 9th, 22nd, and 27th. Lightning on the 23rd, 27th, 28th, and 29th. Heavy rain on 15th, 19th, 20th, 21st, 22nd, 25th, and 29th. Gales of wind on 18th, 22nd, and 26th.

OCTOBER, 1899.

Results of Observations taken during the Month.		Mean for the last 52 years
Mean Reading of the Barometer .....inches	29·616	29·429
Highest ,, on the 21st .,	30·036	30·023
Lowest ,, on the 1st ,,	28·784	28 644
Range of Barometer Readings	1·252	1·379
Highest Reading of a Max. Therm. on the 18th	64·0	64·4
Lowest Reading of a Min. Therm on the 6th	29·6	28·8
Range of Thermometer Readings	34·4	35 6
Mean of all the Highest Readings.....	56·7	54 6
Mean of all the Lowest Readings	38·9	41 5
Mean Daily Range	17·8	13·1
Deduced Monthly Mean (from Mean of Max. and Min.)	46·8	47·1
Mean Temperature from Dry Bulb.....	46·7	47·6
Adopted Mean Temperature.....	46·8	47·4
Mean Temperature of Evaporation	45·1	45·2
Mean Temperature of Dew Point	43·2	42·7
Mean elastic force of Vapour .....inches	0·280	0·275
Mean weight of Vapour in a cub. ft. of air grains	3·2	3·1
Mean additional weight required for saturation ,,	0·5	0·6
Mean degree of Humidity (saturation 1·00) ..	0 88	0·84
Mean weight of a cubic foot of air ....grains	541·8	537·6
Fall of Rain . ...inches	3·071	4 960
Number of days on which Rain fell	12	21·1

	N	NE	E	SE	S	SW	W	NW
No. of days in the month on which the prevailing wind was	11	2	2	0	0	7	8	1
Mean Velocity in miles per hour	4·8	8·8	10·6	0	0	9·2	9·0	15·5
Total No. of Miles for each Direction	1260	421	510	0	0	1547	1725	371

The total number of miles registered during the month was 5834.

The max. Velocity of the wind was 35 miles per hour, S.W., on the 3rd at noon.

OCTOBER, 1899.

Mean amount of Cloud (an overcast sky being indicated by 10·0)			5·6
In the month of October the highest reading of the Barometer during 52 years, was on the	5th, in	1884, and was ..	30·306
The lowest ,,	19th, 1862	,, ...	28·139
The highest Temperature	9th, 1869	,, ...	72·8
The lowest ,,	28th, 1895	,, ...	17·8
The highest adopted mean temperature of the month,		1861 &'76	51·6
The lowest ,,		,, 1895 ..	42·8
Greatest fall of rain during the month in		.. 1870	13·437in
Least ,,		,, .. 1856	1·328in
Greatest number of days on which rain fell		.. 1873	31
Least ,,		,, 1881-'87-'97-'99	12

Table of Differences.

The signs + and — mean respectively above and below the monthly average.

Mean barometric pressure	+	0·187 inches
Monthly range ,, ...	—	0·127 ,,
Mean of highest temperatures ...	+	2·1 degrees
Mean of lowest ,, ...	—	2·6 ,,
Mean daily range ,, ...	+	4·7 ,,
Adopted mean temperature	—	0·6 ,,
Total rainfall	—	1·889 inches

Ground Frost on 4th—7th, 9th, 14th, 15th, 19th—21st, 24th, 25th and 31st. Hail on 12th, 30th and 31st. Lightning on 30th. Fog on 6th, 11th and 23rd Heavy rain on 29th.

NOVEMBER, 1899.

Results of Observations taken during the Month.		Mean for the last 52 years.
Mean Reading of the Barometer.....inches	29·666	29·346
Highest ,, on the 17th ,,	30·319	30 066
Lowest ,, on the 3rd ,,	28·518	28·560
Range of Barometer Readings ..... ,,	1·801	1·506
Highest Reading of a Max. Therm on 2nd & 4th	61·0	56·0
Lowest Reading of a Min. Therm. on the 17th	26·9	25·5
Range of Thermometer Readings	34·1	30·5
Mean of all the Highest Readings	52·8	47·4
Mean of all the Lowest Readings	41·3	36·5
Mean Daily Range	11·5	10·9
Deduced Monthly Mean (from Mean of Max. and Min.)	46·7	41·6
Mean Temperature from Dry Bulb	47·3	41·8
Adopted Mean Temperature	47·0	41·7
Mean Temperature of Evaporation	45·0	39·5
Mean Temperature of Dew Point	42·8	38·1
Mean elastic force of Vapour ..... inches	0·275	0·231
Mean weight of Vapour in a cub. ft. of air grains	3·2	2·7
Mean additional weight required for saturation,,	0 5	0·4
Mean degree of Humidity (Saturation 1·00)..	0·86	0·87
Mean weight of a cubic foot of air.... grains	542·5	5·449
Fall of rain ..... inches	3·275	4·344
Number of days on which Rain fell.....	17	19·9

No. of days in the month on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	0	5	0	0	6	7	12	0
Mean Velocity in miles per hour	0	4·6	0	0	20·8	10·5	14·9	0
Total No. of miles for each Direction	0	551	0	0	2992	1771	4298	0

The total number of miles registered during the month was 9612.
The max. Velocity of the wind was 58 miles per hour, S. by E. on the 3rd at 2 p.m.

NOVEMBER, 1899.

Mean amount of Cloud (an overcast sky being indicated by 10·0)			8·8
In the month of November, the highest reading of the Barometer during 52 years was on the 12th, in 1857, and was			30·350
The lowest	,,	11th, 1891	,, 27·938
The highest Temperature		2nd, 1894	,, 62·0
The lowest	,,	17th, 1861	,, 19·1
The highest adopted mean temperature of the month, 1881 and 1899			.. 47·0
The lowest	,,	,,	1851 36·7
Greatest fall of rain during the month in ..			1866 9·026in
Least	,,	,, ..	1855 1·158in
Greatest number of days on which rain fell ..			1872 29
Least	,,	,, ..	1855 8

Table of Differences.

The signs + and — mean respectively above and below the monthly average.

Mean barometric pressure	+	0·320 inches
Monthly range ,, ...	+	0 295 ,,
Mean of highest temperatures ..	+	5·4 degrees
Mean of lowest ,, ...	+	4·8 ,,
Mean daily range ,, ...	+	0·6 ,,
Adopted mean temperature	+	5·3 ,,
Total rainfall	—	1·069 inches

Ground Frost on 4th, 16th, 17th, and 18th. Hail on 3rd and 11th. Distant thunder on 2nd Thunderstorm on 8th. Fog on 18th. Gales of wind on 3rd, 4th, 7th, 10th and 11th. Heavy rain on 7th and 26th.

DECEMBER, 1899.

Results of Observations taken during the Month.		Mean for the last 52 years.
Mean Reading of the Barometer .... inches	29·442	29·455
Highest ,, on the 3rd ,,	30·088	30 074
Lowest ,, on the 29th ,,	27·975	28·575
Range of Barometer Readings..... ,,	2·113	1·499
Highest Reading of a Max. Therm. on the 6th	53·2	53·2
Lowest Reading of a Min. Therm. on the 27th	11·2	20 1
Range of Thermometer Readings	42·0	33·1
Mean of all the Highest Readings	40·7	43·2
Mean of all the Lowest Readings	28·9	32·9
Mean Daily Range.....	11·8	10 3
Deduced Monthly Mean (from Mean of Max. and Min)	34·8	38 0
Mean Temperature from Dry Bulb.....	35·6	38·7
Adopted Mean Temperature	35 2	38·4
Mean Temperature of Evaporation	33·8	36·8
Mean Temperature of Dew Point	31·6	34 9
Mean Elastic force of Vapour .....inches	0·178	0·205
Mean weight of Vapour in a cubic ft. of air grains	2·1	2·4
Mean additional weight required for saturation,,	0·3	0 4
Mean degree of Humidity (saturation 1·00)..	0 86	0·87
Mean weight of a cubic foot of air .... grains	551·9	548·3
Fall of Rain	4·111	4·510
Number of days on which Rain fell.....	16	20·8

	N	NE	E	SE	S	SW	W	NW
No. of days in the month on which the prevailing wind was	6	5	6	2	2	3	6	1
Mean Velocity in miles per hour	4·0	5·6	8·0	4·4	8·6	11·9	9·7	1·3
Total No. of Miles for each Direction	580	673	1152	211	414	854	1391	32

The total number of miles registered during the month was 5307.
The max. Velocity of the wind was 35 miles per hour, S.S.E., on the 16th, at 3 p.m.

DECEMBER, 1899.

Mean amount of Cloud (an overcast sky being indicated by 10·0)				8·2
In the Month of December, the highest reading of the Barometer during 52 years, was on the 22nd, in 1849, and was				30·378
The lowest	,,	8th, 1886	,, ...	27·350
The highest Temperature		9th, 1876	,, ...	58·1
The lowest	,,	24th, 1860	,, ...	6·7
The highest adopted mean temperature of the month			1857	44·6
The lowest	,,		1878 ,, ...	30·3
Greatest fall of rain during the month			1880	9·211 in.
Least	,,		1890	0·550 in.
Greatest number of days on which rain fell			1868	31
Least	,,		1890	8

Table of Differences.

The signs + and — mean respectively above and below the monthly average.

Mean barometric pressure	—	0·013	inches
Monthly range ,, ...	+	0·614	,,
Mean of highest temperatures ..	—	2·5	degrees
Mean of lowest ,, ...	—	4·0	,,
Mean daily range ,, ...	+	1·5	,,
Adopted mean temperatures	—	3·2	,,
Total rainfall	—	0·359	inches

Ground Frost on the 2nd, 3rd, 7th—18th, 20th—23rd, 25th—28th, 30th and 31st. Snow on 11th—14th, 22nd, 25th, 26th, 28th. Hoar Frost on 27th. Hail on 25th, 28th and 31st. Heavy rain on 4th and 29th. Fog on 26th and 27th. Lunar Halo on 8th, 11th and 13th.

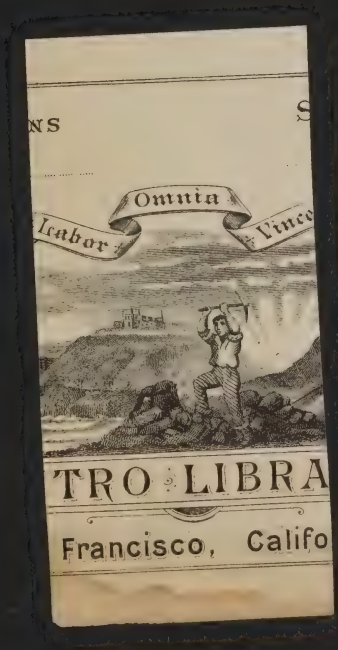
Summary of Observations, 1899.

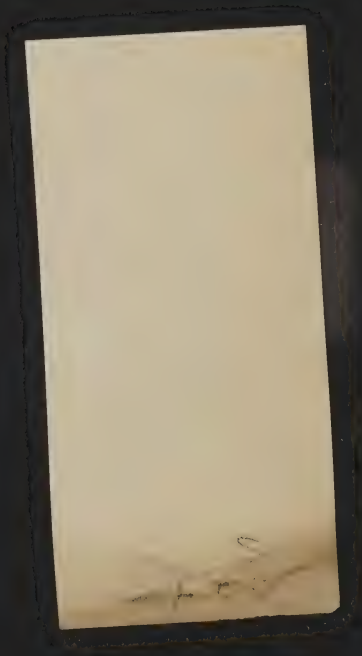
Results of Observations taken during the Year.		Mean for the last 52 years.
Mean Reading of the Barometer .....inches	29·537	29·493
Highest ,, on January 26th ,,	30·346	30·283
Lowest ,, on December 29th ,,	27·975	28·259
Range of Barometer Readings ,,	2·371	2·024
Highest Reading of a Max. Therm. on Aug. 2nd	85·9	81·7
Lowest Reading of a Min. Therm. on Dec. 27th	11·2	15·4
Range of Thermometer Readings	74·7	66·3
Mean of all the Highest Readings.....	56·6	54·9
Mean of all the Lowest Readings.....	40·5	40·6
Mean Daily Range	16·1	14·3
Deduced yearly Mean (from Mean of Max. and Min.)	47·5	46·8
Mean Temperature from Dry Bulb	48·2	46·8
Adopted Mean Temperature	47·9	46·8
Mean Temperature of Evaporation	45·3	44·5
Mean Temperature of Dew Point	42·4	42·1
Mean elastic force of Vapour .....inches	0·282	0·273
Mean weight of Vapour in a cub. ft. of air grains	3·2	3·3
Mean additional weight required for saturation ,	0·8	0·7
Mean degree of Humidity (saturation 1·00)...	0·82	0·84
Mean weight of a cubic foot of air.....grains	539·4	539·2
Total fall of rain in the year ..... inches	47·657	47·172
Number of days on which Rain fell.....	16·4	18·6

Summary of Wind.

	N	NE	E	SE	S	SW	W	NW
No of days in the year on which the prevailing wind was	49	45	35	8	33	53	136	6
Mean Velocity in miles per hour	5·3	6·6	8·3	7·9	13·3	10·2	10 9	11·1
Total No. of miles for each Direction	6208	7154	6962	1519	10547	13032	35602	1603

The total No. of miles registered during the year was 82628.
The max. Velocity of the wind was 63 miles per hour, W., on 12th January, at 5-30 and 6-0 p.m.


NS
Omnia
labor
Vince
TRO LIBRA
Francisco, Califo



SUMMARY, 1899.

The Maximum monthly mean height of the Barometer was in February, 1891, and was.....inches	29·997
The Minimum ,, ,, in December, 1868, and was	28·984
The Maximum yearly mean height of the Barometer was in 1896, and was.....inches	29·584
The Minimum ,, ,, in 1886, and was	29·389
The greatest monthly range of the Barometer was in January, 1884, and was .....inches	2·409
The least ,, ,, in July, 1852, and was ,,	0·505
The highest reading of the Barometer during 52 years was on January 9th, 1896, and was .....inches	30·597
The lowest ,, ,, on December 8th, 1886, and was	27·350
Extreme range .....inches	3·247
The highest temperature was on June 18th, 1893, and was..	88 7
The lowest ,, ,, January 15th, 1881	4 6
The highest adopted mean temperature of a month, July 1868, and was	62·4
The lowest ,, ,, ,, February, 1855 ..	28 6
The highest adopted mean temperatures of a year, 1868 ..	49·1
The lowest ,, ,, ,, 1879 ..	44·1
The greatest monthly mean weight of vapour in a cubic foot of air..... grains } July, 1852..	5·1
The least ,, ,, February, 1855, and 1895 grains	1·4
The greatest fall of rain in a month, was in October, 1870, and was .....inches	13·437
The least ,, ,, ,, May, 1859 ,,	0·249
The greatest number of days on which rain fell in one month, January, 1872, October, 1873, December, 1868	31
The least ,, ,, ,, March, 1852	3
The greatest fall of rain in one year in 1866 .... inches	62·183
The least ,, ,, ,, 1887 .... ,,	31·250
The greatest number of days in one year on which rain fell .. 1872.....	319
The least ,, ,, ,, 1855.....	148

DATES OF OCCASIONAL PHENOMENA.

1899.	Frost.	Hoar Frost.	Snow.	Hail	Heavy Rain.
January	1—3, 5, 6, 11—14, 17. 18. 22—31	25	1, 2, 11, 17. 18, 29	1, 2, 11, 16, 19	1,15,17,18,20,21
February	1—7, 13. 15—17. 21—28		1, 2. 4, 6		9
March	1—7, 9, 10. 12. 13, 16—27		4. 18—21, 23, 25	7	25, 30
April	8, 9, 11—13, 16—18, 21—23, 27, 30		8, 11, 16, 17, 18	8, 11. 16	9
May	3—7, 26—28			16	23
June					28. 30
July					1
August					29
September	15, 28, 29			20. 22. 26, 27	15,19,20,21,22,25,
October	4—7, 9, 14, 15, 19—21, 24, 25, 31			12. 30. 31	29 [29
November	4, 16—18			3, 11	7, 26
December	2. 3. 7—18. 20—23. 25—28. 30. 31	27	11-14.22,25,26,28	25. 28. 31	4. 29

1899.	Gales of Wind.	Fog.	Thunder	Lightning.	Lunar Halo.	Solar Halo.
January	12, 21					
February	9	16		8	15	
March	28, 29					
April			7, 13, 20			
May	18		23. 24	23		
June			10. 20. 28	28		
July			1, 3, 6, 12	3, 20		
August			4, 6, 27. 28. 29, 31	4. 5, 6, 27, 29	19	
September	18, 22, 26		9, 22. 27	23, 27, 28, 29		
October		6, 11, 23	30	30		
November	3, 4, 7, 10, 11	18	2, 8	8		
December		26, 27			8, 11. 13	

Aurora Borealis on 12th of January during the evening.

MONTHLY TABLES FOR EACH HOUR OF RECORDED SUNSHINE

Local apparent time.	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9
January - -	0	0	0	0	0·6	1·7	3·1	5·3	7·7	4·8	4·2	0·2	0	0	0	0	0
February - -	0	0	0	0·2	3·2	9·0	12·1	13·5	13·9	12·6	8·3	5·1	0·3	0	0	0	0
March - - -	0	0	1·6	5·0	9·8	11·1	12·4	16·0	17·1	17·1	15·8	12·8	9·0	2·7	0	0	0
April - - -	0	0·9	2·6	6·4	11·2	12·6	12·7	12·1	12·6	10·3	10·5	7·2	6·9	7·2	2·7	0	0
May - - -	0·7	6·4	10·4	12·7	14·5	13·5	14·0	15·1	15·5	14·7	14·3	14·5	13·7	11·7	6·9	1·7	0
June - - -	2·5	12·2	14·3	17·9	19·5	20·1	21·6	21·9	21·4	22·8	19·7	18·9	19·3	18·0	14·3	5·3	0
July - - -	0·5	4·7	9·1	9·7	12·3	11·1	12·1	11·9	13·5	16·2	18·8	16·5	15·7	13·7	13·1	5·2	0
August - - -	0·2	5·6	9·8	15·8	19·4	20·2	22·7	21·6	20·0	19·0	20·4	20·2	17·9	15·7	6·3	0·4	0
September - -	0	0	2·8	7·7	11·2	12 6	12·3	14·0	12·9	13·0	13·4	12·2	8·9	4 6	0·3	0	0
October - -	0	0	0·5	4·2	11·0	13·3	18·7	16·5	17·0	17·3	17 5	13·5	5·4	0	0	0	0
November - -	0	0	0	0	0·2	1·7	5·0	7·3	9·1	6·9	5·6	1·5	0·3	0	0	0	0
December - -	0	0	0	0	0	2·3	3·6	4·0	4·0	2·9	1·7	0	0	0	0	0	0
Total - -	3·9	29·8	51·1	79·6	112·9	129·2	150·3	159·2	164·7	157·6	150·2	122·6	97·4	73·6	43·6	12·6	0

TOTAL AMOUNT OF SUNSHINE RECORDED ON EACH DAY.

MONTH.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
January - - -	0·4	0	1·2	0	3·2	0	0	0	0	0	0	0·6	0	4·7	0	0·8	3·9
February - - -	4·8	3·2	4·0	0	0	0	0	0	0	1·2	4·5	3·6	0·6	5·5	2·6	1·5	5·1
March - - -	6·2	0·5	0·3	0·2	2·8	4·2	2·6	1·3	2·3	3·8	1·9	9·7	0	0	7·8	7·0	6·5
April - - -	3·3	0	0	2·7	3·8	3·8	1·3	8·7	0·4	1·9	9·7	6·6	0·8	1·1	0·9	5·7	8·3
May - - -	0	1·2	9·7	11·7	13·3	12·7	14·3	13·4	3·1	7·3	0	0	0	2·0	1·9	7·5	6·0
June - - -	8·4	9·1	13·4	14·0	12·0	14·4	14·2	12·7	12·0	10·8	10·3	14·7	14·3	13·6	13·7	15·2	13·9
July - - -	1·9	0·3	2·5	13·2	6·9	4·5	5·5	8·0	5·8	0	0·3	0·5	13·1	4·4	9·6	12·2	11·6
August - - -	13·8	11·8	8·7	5·8	8·2	1·4	1·2	11·8	12·1	11·8	11·4	9·7	12·8	5·0	7·7	9·5	3·3
September - - -	4·7	7·4	3·0	8·7	8·9	0·2	9·7	4·3	3·9	0	0·2	2·2	0·3	7·0	2·7	10·0	3·4
October - - -	1·8	2·1	0	6·8	6·9	5·9	7·8	5·5	4·8	2·0	0	0	8·5	8·5	7·8	7·8	0·6
November - - -	1·8	0·9	0	0·7	2·8	3·7	0	0·4	6·0	0·5	2·2	0	2·2	1·7	1·9	4·0	3·0
December - - -	0	3·8	0	0	0	0	0	0	0	3·1	1·9	0	0	1·7	0	0·6	0

TOTAL AMOUNT OF SUNSHINE RECORDED ON EACH DAY.

(Continued)

MONTH.	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Monthly Total.	Per centage each month
January - -	0	0·7	0	0	0 4	0·7	4·9	1·9	0	3·9	0	0·3	0	0	27·6	11·1
February - -	0	0	0	5·6	8·0	5·3	1·9	6·8	6·6	2·7	4·7	0	0	0	78·2	28·8
March - -	4·7	7·3	8·8	5·1	9·9	10·5	10·3	0	0·6	5·9	0	6·0	4·2	0	130·4	35·7
April - -	10·1	7·2	0·2	5·9	0·2	2·9	0	5·4	7·6	3·3	0·1	2·2	11·8	0	115·9	27·7
May - -	0·6	1·8	2·2	0	0	1·4	0	3·1	8·2	8·1	13·3	12·3	13·1	12·1	180·3	36·6
June - - -	0·4	10·5	1·9	7·2	0	2·0	9·1	0·9	3·6	0·3	0·2	9·4	7·5	0	269·7	53·1
July - - -	10·3	5·2	1·7	2·8	0	0·5	12·7	1·2	6·8	9·7	7·2	0	14·1	11·6	184·1	36·2
August - -	0	5·6	3·3	8·8	11·6	10·7	11·0	7·8	8·1	1·8	7·6	2·8	6·2	3·9	235·2	51·5
September -	5·4	0·4	2·2	4·7	5·4	3·4	3·6	1·2	5·3	3·7	7·7	4·8	1·5	0	125·9	33·2
October - -	7·6	7·4	6·0	5·8	1·9	5·7	7·7	0	0	0	2·9	0	6·3	6·8	134·9	41·4
November -	0	0	0	1·8	0	0	0·4	0	0·7	0	0	0	2 9	0	37·6	14·7
December - -	0·8	0	0	0	0	0	0 6	2·3	0·8	0	0	0	0·2	2·7	18·5	8·0

SUMMARY OF SUNSHINE.

1899.	Number of days on which Sunshine was recorded.	Amount or Total Number of Hours	Per centage of possible Sunshine.	Mean for the last 19 Years.		
				Days.	Amount hours	Per centage of possible Sunshine.
January ...	14	27·6	11·1	13·8	34·9	14·1
February...	19	78·2	28·8	17·6	59·9	21·8
March ...	26	130·4	35·7	23·8	107·0	29·2
April ...	27	115·9	27·7	25·8	144·2	34·4
May ...	24	180·3	36·6	27·7	195·7	39·7
June ...	29	269·7	53·1	27·4	193·5	38·1
July ...	28	184·1	36·2	28·4	176·9	34·7
August ...	30	235·2	51·5	27·6	147·2	32·2
September	29	125·9	33·2	25·4	122 7	32·4
October ...	24	134 9	41·4	23·0	88 6	27·2
November	18	37·6	14·7	16·5	43·4	17·0
December	11	18·5	8·0	12·7	26·3	11·4
Year	279	1538·3	34·5	269·7	1340 3	30·0

SUMMARY OF SUNSHINE

(Continued).

EXTREMES FOR THE LAST 19 YEARS.

Month	Number of Days on which Sunshine was recorded.				Amount or Total number of Hours.				Percentage of possible Sunshine.			
	GREATEST		LEAST		GREATEST		LEAST		GREATEST		LEAST	
	Days	Year	Days	Year	Hours	Year	Hours	Year	o/o	Year	o/o	Year
Jan	21	1881	8	1898	64·2	1881	14·9	1885	30·0	1881	6·0	1885
Feb.	24	1895	11	1882	89·3	1887	29·6	1882	32·8	1887	10·9	1882
Mar	28	1894	19	1881 1882	162 1	1893	67·0	1895	44·2	1893	18·3	1895
Apr.	28	1884 1887 1892 1893 1896	23	1883 1885 1888 1887	223·7	1893	95·7	1889	53·4	1893	22·8	1889
May	30	1881 1884 1888	22	1886	266·6	1881	127·0	1886	54·1	1881	25·8	1886
June	30	1896	24	1888 1897	272·5	1887	115 0	1890	53·6	1887	22·6	1890
July	31	1882	8	1888	247·2	1887	98·0	1888	48·6	1887	19·3	1888
Aug	31	1886 1893	23	1894	235·2	1899	88·4	1891	51·5	1899	19·3	1891
Sept	29	1895 1899	21	1897	170·0	1895	62·9	1896	44·9	1895	16·6	1896
Oct.	28	1891	17	1889	134·9	1899	50·0	1889	41·4	1899	15·3	1889
Nov	23	1883	9	1897	60·5	1884	18·5	1891	23·6	1884	7·2	1891
Dec.	18	1886	6	1882	60·1	1883	14 5	1882	26·0	1886	6·3	1882
Year	290	1887	252	1885	1613·7	1887	1132.1	1888	36·1	1887	25·3	1888

OBSERVATIONS OF UPPER CLOUDS (CIRRUS).

Date. 1899.	G. M. T.	Cloud.		Wind.		Direction of Lower Clouds.
		Direction	V'locity (0—6.)	Direction.	Force (0—12.)	
January 5	12-30pm	SW	2	W b S	3	W
,, 12	10-0am	SW b W	3	SW b W	5	SW b S
,, 16	9-0am	W	2	SW	2	SW
,, 17	8-0am	N	3	WNW	3	NW
,, 19	2-0am	SW	3	W b S	4	W
,, 23	9-15am	N b W	3	NW b N	2	NW
,, 28	7-40am	E	2	NE b N	0	
February 1	8-0am	NW	2	NW b W	0	NW b W
,, 4	10-0am	NW	3	N b W	0	SW
,, 8	9-0am	SW b W	3	S	2	SW
,, 11	7-30am	NE	2	S	5	SW
,, 14	9-0am	W	3	SW b S	4	SW
,, 15	8-30am	W b S	2	SW	1	SW
,, 16	3-0pm	SW b S	2	SW b S	2	SW
,, 17	10-0am	S	2	ENE	0	SW
,, 21	8-0am	SE b E	2	E b S	3	E b N
,, 23	7-30am	NW	3	NNE	1	
,, 24	10-0am	W b S	2	NNE	1	SW
,, 28	3-30pm	WNW	2	W b S	4	W
March 1	noon	S b W	2	WSW	4	W
,, 12	11-30am	S	2	W	1	W
,, 29	1-40pm	W b N	3	WSW	8	W
April 4	4-0pm	NW	3	WSW	5	SW
,, 17	4-0pm	W b S	2	W b S	3	W
,, 19	9-0am	W	2	SW b W	3	WSW
,, 27	8-0am	W	2	E b S	0	
May 8	2-0pm	NNE	2	NE b E	2	
,, 30	3 0pm	W	2	W	2	
,, 31	9-0am	S	2	S b W	1	
June 2	9-0am	SW	2	W b S	3	W
,, 4	10-0am	S	2	SW	1	
,, 8	9-0am	NE	2	ENE	1	
,, 9	9-0am	NE	2	ENE	1	
,, 13	9-0am	NW	2	ENE	2	NE
,, 14	5-20pm	N	3	ENE	1	
,, 19	4-0pm	NW	2	N b W	1	W
,, 24	Noon	S	2	W b N	4	W
July 4	10-0am	NW	2	W b N	1	W

OBSERVATIONS OF UPPER CLOUDS (Continued).

Date. 1899.	G. M. T.	Cloud.		Wind.		Direction of Lower Clouds.
		Direction.	Velocity (0—6.)	Direction.	Force. (0—12.)	
July 5	4-0pm	SW	2	WNW	1	W
,, 7	2-0pm	W	2	SW b W	1	SW
,, 11	6-20pm	W	2	W b S	2	S
,, 13	4-0pm	W b S	3	WSW	2	SW
,, 15	11-0am	S b W	2	WSW	2	WSW
,, 16	9-0am	S	2	WSW	1	SW
,, 17	9-0am	W	2	W	0	SW
,, 18	2-0pm	W	2	W b S	2	SW
,, 26	5-40pm	SW	3	WNW	2	NW
,, 30	11-0am	W b S	2	WSW	2	
,, 31	4-0pm	W b N	2	W b S	2	
August 1	8-30pm	SW	2	SW b W	1	
,, 2	9-0am	S	2	N b E	1	
,, 4	9-0am	W b S	2	NE	2	NE
,, 5	9-0am	SSE	2	NE	2	NE
,, 8	9-10am	S	2	E b N	2	NE
,, 13	9-0am	S	2	NE b N	0	
,, 16	11-0am	W b S	3	W b S	2	SW
,, 26	8-0am	SW	3	E b N	1	
September 1	9-0am	NW	2	W b S	1	W
,, 2	10-0am	NW	2	WSW	2	SW
,, 5	10-45am	S	2	WSW	2	SW
,, 8	Noon	W	2	W b S	2	W
,, 9	7-30am	NNW	3	WNW	2	W
,, 14	7-30am	SW	3	NW b W	1	NW b N
,, 18	2-15pm	W b S	3	W b S	6	W
,, 27	9-0am	SW	3	SSW	1	W
October 4	7-30am	SW b S	3	W b S	1	W
,, 6	4-0pm	W	2	SW b S	1	
,, 14	Noon	NW	2	NE	1	NE
,, 16	4-0pm	NE	2	E	2	
,, 18	2-0pm	SW	2	S	1	
,, 20	9-0am	ENE	2	NNE	1	
,, 21	9-0am	ENE	2	NNE	1	N
November 4	9-0am	W	2	SSW	1	S
,, 6	9-0am	S	2	SSW	1	SW b S
,, 13	11-0am	N b E	3	SW b W	2	W
,, 21	3-0pm	NNW	2	W b S	2	W
December 2	9-0am	NW	3	SW	0	
,, 8	9-30am	N b E	3	ESE	4	E
,, 9	8-30am	N b W	2	NE b N	1	E
,, 10	11-30am	NW	2	SE	1	
,, 11	2-0pm	NE	2	NE b N	0	NE
,, 19	10-0am	NW	2	SE	1	SE

Observations of Earth-Magnetism.

Absolute measures of Horizontal Magnetic Force have been made once each month, by the method of Vibration and Deflection.

In these observations the same Magnet has been employed from the beginning of the series in March. 1863. The weight of the Magnet with its stirrup is 825 grains, and its length 3·94 inches nearly. Its moment of inertia, measured by the method of vibrations, with and without a known increase of the moment, is 5·27303 to the English foot—second—grain units, at the temperature 35° Fahr., and its rate of increase is 0·00073 for increase of 10°.

The temperature corrections have been obtained from the formula $q(t°—32°) + q'(t°—32°)^2$ where t° is the observed temperature and 32° Fahr. the adopted standard temperature. The values of the co-efficient q and q' are respectively 0·0001128 and 0·000000436.

The induction co-efficient μ is 0·000244.

The correction for error of graduation of the Deflection bar at 1·0 foot is + 0·00004ft. at 1·3 + 0·000064 ft.

The observed times of vibration are entered in the Table without corrections.

The time of one vibration has been obtained each month from the mean of twelve determinations of the time of 100 vibrations.

The angles of deflection are each the mean of two sets or readings.

In deducing from these observations the ratio and product of the magnetic moment m of the magnet, and the earth's horizontal magnetic intensity X, the induction and temperature corrections have always been applied, and the observed time of vibration has been corrected for the effect of torsion of the suspending thread; but no correction has been required for the rate of the chronometer, or for the arc of vibration, the former having been always under $1·5^s$ and the latter never over 50′.

The average deflection of the magnet caused by a twist of the torsion circle through 90° has been about 9′·9 of arc.

In the calculations of the ratio $\frac{m}{X}$, the third and subsequent terms of the series $1 + \frac{P}{r2} + \frac{Q}{r4} +$ &c., have always been omitted.

The value of the constant P was found to be —0·00271.

The Vertical and Total Forces are deduced from the measures of the Horizontal Force, and the Angle of Inclination or Dip.

All the computations are in English foot—second—grain units; and in the final table the results are given also in C. G. S units, in parallel columns.

The Dip, or angle between the direction of total force, and that of its horizontal component, has been measured with Barrow's Circle, once each month by two needles, always when possible on the days of vibration and deflection observations.

The Declination has been observed at the beginning of each week, usually on Mondays at 4 p.m. and is quoted as the angle between the horizontal direction of force and the Astronomical Meridian, measured from the North Point.

The Differential Instruments, or Photo-Magnetographs, are of the same pattern as those at the Kew Observatory, except that the radial distances between the centres of the magnets and the surfaces of the respective cylinders are shorter, and the clock is not provided with an automatic light-cut-off, for the time scale. The "cut-offs" are made by hand at the hours 0, 2, 20, and 22 of the astronomical day, to furnish two time marks at each end of the day's curves, the changes being made between 10-30 and 11 a.m., civil time.

The scale value of the Bifilar horizontal force torsion balance, has remained very constant at 0·00051 C. G. S. for one centimetre, during the last seven years

The scale value of the Unifilar Declination Magnet is 11′·28 arc per centimetre.

The corrections for diurnal range, employed in the tables, are taken from the Kew Reports 1891-98.

OBSERVATIONS OF DECLINATION AND DIP.

1899 Month	G.M.T. Civil Day	West Declination Observations.	Monthly Mean.	Needle	Magnetic Dip. Dip.	G.M.T. Civil Day
	D. H. M.	° ′	° ′		° ′	D. H. M.
Jan.	2 16 0	18 18 9	18 19·3			
	10 16 0	18 19 7		1	68 45·5	17 11 20
	16 15 45	18 19·0		3	68 58·5	,, 12 5
	23 16 5	18 20·6				
	30 16 0	18 18·2				
Feb.	6 15 55	18 21·2	18 18·2			
	13 16 0	18 16·2		1	68 49·3	15 15 48
	20 16 0	18 19 0		3	68 56·9	,, 16 25
	27 15 50	18 16 2				
March	6 16 5	18 23 9	18 19·7			
	13 16 0	18 20·1		1	68 45·8	16 11 57
	20 16 5	18 17·5		3	68 53·3	,, 12 28
	27 16 15	18 17·2				
April	3 16 0	18 17·6	18 19·8			
	10 16 10	18 20 7		1	68 45·8	15 16 0
	17 16 5	18 19·3		3	69 0·1	,, 16 38
	24 16 30	18 21·5				
May	1 16 0	18 21·7	18 19·7			
	8 16 0	18 17·1		1	68 48·3	20 16 0
	15 16 5	18 21·5		3	68 58·6	,, 16 35
	22 16 5	18 20 2				
	29 16 5	18 17 8				
June	12 16 5	18 19·2	18 19 3	1	68 46·4	15 13 5
	19 16 0	18 19·7		3	69 0 0	,, 13 34
	26 16 5	18 19 0				
July	3 16 0	18 16·9	18 18·4			
	10 16 0	18 20·1		1	68 45·4	14 11 51
	17 16 0	18 18·2		3	68 58·6	,, 12 29
	24 16 0	18 18·2				

OBSERVATIONS OF DECLINATION AND DIP.

(Continued.)

1899 Month	G.M.T. Civil Day	West Declination		Magnetic Dip.		
		Observations.	Monthly Mean.	Needle	Dip.	G.M.T. Civil Day
	D. H. M.	° ′	° ′		° ′	D. H. M.
Aug.	14 16 0	18 16·2	18 14·4	1	68 53·1	14 11 1
	21 16 15	18 12·4		3	68 59 0	,, 11 41
	28 16 5	18 14·7				
Sept.	11 16 10	18 15·1	18 16·5	1	68 45·3	15 11 58
	18 16 0	18 17·1		3	68 58·5	,, 12 37
	25 16 0	18 17·1				
Oct.	2 16 0	18 16·7	18 16·9	1	68 46·4	16 11 48
	10 16 0	18 18·5		3	68 47·4	,, 12 23
	16 16 0	18 14·4				
	23 16 0	18 18·6				
	31 16 5	18 16·4				
Nov.	6 16 0	18 17·7	18 14·7	1	68 42·4	15 11 48
	13 16 0	18 15·8		3	68 58·8	,, 12 26
	20 16 0	18 12·2				
	27 16 0	18 13·2				
Dec.	4 16 10	18 15·0	18 15·0	1	68 45·5	15 9 38
	11 16 5	18 15·1		3	68 53·5	,, 10 20
	18 16 5	18 15·0				
	26 16 0	18 14·9				
Yearly Mean			18 17·7		68 51·8	

OBSERVATIONS OF VIBRATIONS AND DEFLECTIONS FOR ABSOLUTE MEASURE OF MAGNETIC FORCE.

1899. Month.	G. M. T. (Civil Day)	Temp.	Time of one vibration	G. M. T.	Temp.	Observed Deflection at 1·0 ft. / at 1·3 ft.	Value of m.
	D. H. M.	°	S.	D. H. M.	°	° ′	
Jan.	16 10 38	50·0	5·9964	16 {11 53 11 56	53·5 54·0	11 49·3 5 21·0	0·38582
Feb.	15 10 39	51·1	6·0028	15 {11 49 11 49	51·3 51·7	11 50·9 5 21·8	0·38568
Mar.	16 9 55	44·1	5·9957	16 {10 42 10 42	48·9 49·0	11 48·6 5 21·4	0·38523
Apr.	15 9 4	46·0	5·9918	15 {10 44 10 42	46·1 46·5	11 50·3 5 21·5	0·38593
May	20 10 15	56·5	5·9986	20 {11 43 11 45	58·5 58·4	11 48·8 5 21·2	0·38577
June	15 10 32	61·8	5·9970	15 {11 25 11 25	64·9 64·8	11 47·2 5 20·2	0·38582
July	14 10 9	65·5	6·0036	14 {10 59 10 58	66·5 66·5	11 47·0 5 20·2	0·38552
Aug.	14 9 6	61·0	6·0003	14 {10 5 10 2	63·3 63·1	11 47·4 5 20·0	0·38554
Sept.	15 10 14	56·5	6·0466	15 {11 24 11 23	58·0 58·3	11 36·9 5 16·1	0·37953
Oct.	16 9 58	53·0	6·0371	16 {10 51 10 54	56·0 56·0	11 38·4 5 16·7	0·38027
Nov.	15 9 57	49·6	6·0435	15 {10 43 11 8	52·0 52·0	11 37·8 5 17·4	0·37952
Dec.	14 11 2	26·8	6·0238	14 {11 54 11 55	33·5 33·5	11 39·3 5 17·8	0·38040

MAGNETIC INTENSITY.

	BRITISH UNITS.			C. G. S. UNITS.		
1899	Horizontal Force.	Vertical Force.	Total Force.	Horizontal Force.	Vertical Force.	Total. Force
Jan. ...	3·7466	9·6929	10·3918	0·17275	0·44691	0·47914
Feb. ..	3·7380	9·6802	10·3770	0·17235	0·44633	0·47846
Mar. ...	3·7451	9·6679	10·3680	0 17268	0·44576	0·47804
April ...	3·7467	9·7014	10·3997	0·17275	0·44731	0·47951
May ...	3 7445	9 6998	10 3973	0·17265	0·44723	0·47939
June ...	3·7501	9·7116	10·4105	0·17291	0·44778	0·48000
July ..	3·7471	9·6942	10·3933	0·17277	0·44697	0·47921
Aug. ...	3·7485	9·7312	10·4283	0·17284	0·44869	0·48082
Sept. ...	3·7456	9·6900	10·3887	0·17270	0·44678	0·47900
Oct. ...	3·7465	9·6497	10·3515	0·17275	0·44492	0·47728
Nov. ...	3·7418	9·6681	10·3670	0·17253	0 44577	0·47800
Dec. ...	3·7534	9·6893	10 3909	0·17306	0 44675	0·47910
Means	3·7462	9·6897	10·3887	0·17273	0·44677	0·47900

HORIZONTAL MAGNETIC DIRECTION.

Horizontal Magnetic Direction, west of north, (from daily measures of the continuous curves.)

1899	Mean of the highest daily readings. (*a*)	Mean of the lowest daily readings (*b*)	Means of *a* and *b*. (*c*)	Means of daily readings at 4a.m & 4p.m. (*d*)	Differences *d*—*c*.	Difference of *a* and *b*, or Mean daily range.	Highest reading of the month.	Lowest reading of the month.	Monthly range.
	18°+						18°+	17°+	
	′	′	′	′	′	′	′	′	′
January	23·5	12·0	17 8	18·8	1·0	11·5	30·3	58 3	32·0
February	23·7	10 0	16 9	18 1	1·2	13·7	35·6	43·3	52·3
March	24 0	8 9	16·5	17 7	1·2	15·1	27·9	50·3	37·6
April	22·8	8·8	15·8	16·6	·8	14·0	28 3	58 7	29·6
May	24·8	9·0	16·9	17·0	·1	15·8	40 2	54·7	45·5
June	22·4	7 2	14 8	15·3	·5	15·2	27·7	20 7	67·0
July	21·1	8·9	15 0	15·5	·5	12·2	24·4	61·2	23·2
August	21·5	8·2	14·9	14·1	—·8	13·3	26·7	61 7	25·0
September	21·7	8·5	15·1	14 2	—·9	13 2	26·2	60·7	25·5
October	18·9	7·0	13 0	13·5	·5	11 9	24·7	38·7	46·0
November	17·1	7·8	12 5	13·2	·7	9 3	24 7	58·7	26·0
December	17·3	7·9	12 6	13·7	1·1	9·4	22 0	57·7	24·3
Means ..	21·5	8·6	15·1	15·6	·5	12·9	28 2	52 0	36·2
Correction for diurnal range				—0·3					
Mean for the year				18° 15′ ·3					

HORIZONTAL MAGNETIC FORCE.

Horizontal Magnetic Force in C. G. S. units (from daily measures of the continuous curves.)

The figures in the columns are entered to the unit 10^{-5} C. G. S.

1899.	Mean of the highest daily readings. (a)	Mean of th lowest daily readings. (b)	Means of a and b. (c)	Means of daily readings 4a m. & 4p.m. (d)	Differences $d-c$	Differences of a and b or Mean daily Range.	Highest reading of the Month.	Lowest reading of the Month.	Monthly Range.
	17000 +				0+		17000+		0+
January - -	307	264	286	285	—1	43	338	173	165
February -	306	255	281	284	3	51	343	183	160
March - -	309	253	281	286	5	56	373	193	180
April - -	314	249	282	287	5	65	341	193	148
May - -	339	262	301	310	9	77	388	201	187
June - -	336	263	300	308	8	73	453	193	260
July - -	321	258	290	293	3	63	393	223	170
August - -	319	251	285	290	5	68	373	211	162
September -	312	248	280	288	8	64	345	213	132
October - -	311	270	291	295	4	41	348	253	95
November -	308	276	292	294	2	32	343	238	105
December -	291	255	273	273	0	36	328	221	107
Means - -	314	259	287	291	4	55	363	208	155

Correction for diurnal range — 00003

Mean Horizontal Force for the year 0·17288 C.G S. units.

DATES OF MAGNETIC DISTURBANCES, 1899.

The disturbances are divided generally into three classes, *small*, *moderate*, and *greater;* these are indicated by the initial letters of the classes. and the letter c denotes *calm.* Very great disturbances are marked vg. The days are reckoned astronomically from noon to noon.

Month.		Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
Day	1	c	s	s	c	m	s	s	c	m	c	c	s
	2	m	s	s	s	s	s	m	s	m	c	c	s
	3	m	s	s	s	g	s	m	m	m	c	s	s
	4	s	s	s	m	m	s	m	m	s	s	s	c
	5	s	s	c	m	s	s	s	s	s	s	s	c
	6	s	s	m	s	s	c	m	s	s	s	s	c
	7	c	c	m	m	s	c	m	s	c	s	c	s
	8	s	s	s	m	s	c	m	s	s	c	c	s
	9	s	c	m	m	s	c	m	s	s	c	c	s
	10	c	c	m	m	s	s	m	s	s	c	c	c
	11	s	m	m	m	m	s	m	c	c	c	s	c
	12	s	g	m	s	c	s	s	s	s	s	s	c
	13	c	s	m	s	s	s	s	s	s	c	s	c
	14	s	m	m	s	s	s	s	s	s	s	c	c
	15	m	m	m	s	m	s	s	c	s	m	c	c
	16	m	s	s	s	s	s	s	s	c	s	c	s
	17	m	s	s	m	s	s	s	s	s	s	s	c
	18	m	s	s	m	s	s	c	s	s	s	c	m
	19	s	s	c	m	s	s	c	s	s	c	s	m
	20	s	m	s	s	s	s	s	m	c	c	c	s
	21	s	s	g	s	s	s	c	m	s	c	c	s
	22	s	m	m	s	s	s	c	s	c	s	m	s
	23	m	m	g	s	s	s	c	s	s	m	m	c
	24	s	m	s	m	c	c	s	s	c	m	s	c
	25	s	m	s	s	s	c	s	s	m	s	s	s
	26	s	s	s	s	m	m	s	c	m	s	c	m
	27	s	m	s	s	s	m	s	s	m	s	c	s
	28	g	s	s	s	c	g	c	s	m	c	c	m
	29	m		s	s	c	g	c	m	m	c	c	s
	30	s		s	s	s	s	c	m	s	c	s	s
	31	s		s		m		c	m		c		s
Totals	c	4	3	2	1	4	6	9	4	6	15	16	12
	s	18	15	17	18	20	20	13	23	16	13	12	15
	m	8	9	10	11	6	2	9	7	8	3	2	4
	g	1	1	2	0	1	2	0	0	0	0	0	0
	vg	0	0	0	0	0	0	0	0	0	0	0	0

DATES OF SOLAR DRAWINGS.

The figures express, in decimals of a day, the Greenwich Civil time at which the drawing was made.

1899.	January	February	March	April	May	June	July	August	September	October	November	December
1	·47	·41	·51			·51		·42		·40	·43	
2		·47				·46		·43	·39			·44
3		·40				·39	·65					
4		·41				·40	·39	·36		·54		
5	·43		·42	·44	·40	·38	·34	·42	39	·40		
6				·46	·38	·42				·45	·42	
7					·34	·34	·67		·39	·39		
8		·36		·36	·42	·73	·65	·45	·39	·39		
9				·36		·40				·41	·45	·43
10		·65	·40		·51	·42		·40		·46		·52
11		·39		·41		·42		·38				·41
12	·44	·42	·48	·38		·42						
13						·37	·47	·37		·44		
14	·41	·49				·39	·65		·40	·37		·53
15		·39	·46		·73	·38	·45		·36	·37		·44
16		·52	·36	·36	·52	·39	·52	·40	·35	·54		·41
17	·41	38	·51	·47	·63	·38	·39				·42	
18		·46	·65	·38			·65			·48		
19			·41	·42	·31	·39	·43			·37		
20			·37					·39		·41		
21		.43	·45	·37		·45		·37		·41		
22		.42	·39					·39		·42		
23	·45	·39	·37	·37				·35		·47		
24	·45	·48	·41			·41	·38	·41	·39	·43		
25	·40	·40		·44				·44				·50
26	·42	·42		·35	.35		·67	·39	·43		·44	
27	·42	·38	·C6	·38	·41		·41					
28	·43				·34		·52		·40	·42	·44	
29			·65		·37	·67			·43			
30			·61	·33	·39	·31	·49			·40	·52	
31					·38		·48					·45

PRESENTS RECEIVED.

Greenwich Observations 1896	Royal Observatory.
Mean Areas and Heliographic Latitudes of Sun Spots in the year 1897, deduced from photographs taken at the Royal Observatory, Greenwich; at Dehra Dûn (India); and in Mauritus.....	,,
Assumed Mean Right Ascensions of Clock Stars and Circumpolar Stars, with the corrections of the R.A. of the Nautical Almanac for 1900-1	,,
Greenwich Spectroscopic and Photographic Results 1896-97	,,
Quarterly Return of the Registrar General 1899	Registrar General.
Report of the Meteorological Council for the year ending 31st of Mar., 1898, to the President and Council of the Royal Society	Meteorological Office.
Hourly Means of the Readings obtained from the self-recording Instruments at the Five Observatories under the Meteorological Council 1895	,,
Meteorological Observations at Stations of the Second Order 1895..	,,
Daily, Weekly, Monthly, and Quarterly Weather Reports	,,
Catalogue of the Crawford Library of the Royal Observatory	Royal Obs., Edinburgh.
Astronomical Observations and Researches made at Dunsink, Dublin. Part VIII.	Trinity College Obs.
Report of the Sixty-eighth Meeting of the British Association for the Advancement of Science, held at Bristol 1898	British Association.
Report of the Committee on Comparing and Reducing Magnetic Observations. Bristol Meeting 1898	Committee.
The Meteorological Record 1898-1899 by William Marriott	Royal Met. Society.
Proceedings of the Royal Society 1899	Royal Society.
Report of the Kew Observatory Committee of the Royal Society for the year ending December 31, 1898	Kew Observavtory.

Monthly Meteorological Observations taken at Ben Nevis Observatory, 1898-99	Ben Nevis Observatory.
Astronomical and Meteorological Observations made at the Radcliffe Observatory, Oxford, in the years 1890-91	Oxford Observatory.
Twenty-fourth Annual Report of the Savilian Professor of Astronomy to the Visitors of the University Observatory, for 1898-1899. Adopted as the Report of the Visitors to the University	Oxford University.
Records of Meteor Observations taken at the Observatory Edgbaston, 1898. By Mr. Alfred Cresswell.	Birmingham Obs.
Report and Results of Observations for the year 1898. By Joseph Baxendell, F.R.Met.S.	Fernley Observatory.
Report of the Scarborough Observatory, 1898. By Ernest W. Ellerbeck, F.R.A.S.	Scarborough Obs.
Meteorological Observations for the year 1898, made under the superintendence of Sir Cuthbert E. Peek, Bart., M.A., F.R.Met.Soc.	Rousdon Observatory.
Variable Star Notes. Nos. 4 and 5. By the same	,,
Report of the Director of the Observatory to the Marine Committee, 1898	Liverpool Observatory.
Report of the Committee of the Blackburn Free Library, 1898-99	Committee.
Preliminary Note on the Spectrum of the Corona. By Sir Norman Lockyer, K.C.B., F.R.S.	Author.
Note on the Enhanced Lines in the Spectrum of α Cygni. By the same	,,
On the Chemical Classification of the Stars. By the same	,,
Results of Meteorological Observations taken in Edinburgh during 1898. By R. C. Mossman, F.R.S.E., etc.	,,
On some Photographs of the Great Nebula in Orion, taken by means of the Less Refrangible Rays of its Spectrum. By Jas. E. Keeler	,,
The Ring Nebula in Lyra. By the same	,,

The Annular Nebula H IV. 13 in Cygnus. By the same	Author.
On the Spectra of Stars of Class III b. By N. C. Dunér.....	,,
The Distribution of Stars in the Cluster Messier 13, in Hercules. By K. K. Palmer	,,
The Præsepe Group. By Frank Schlesinger	,,
The Rutherford Photographic Measures of Sixty-five Stars near 61 Cygni. By Herman S. Davis.	,,
Recent Meteoric Showers. By Fr. W. F. Rigge, S.J.	,,
Investigations on Periodicity in the Weather. By H. Helm Clayton	,,
Precession Tables adapted to Newcombe's Value of the Precessional Constant, and Reduced to the Epoch 1900-1. By A. M. W. Downing, M.A., D.Sc., F.R.S.	,,
On the Wide Cosmical Dissemination of Vanadium. By B. Hasselberg	,,
Observations taken at Dumraon, Behar, India, during the Eclipse of the 22nd of January, 1898, by a party of Jesuit Fathers of the Western Bengal Mission. By Rev. V. de Campigneulles, S.J.	,,
The Variable Velocity of o Leonis in the Line of Sight—the Variable Velocity of χ Draconis in the Line of Sight—The Purkinje Phenomenon and the Spectrum of the Orion Nebula—Notes on the Spectrum of o Ceti. By W. W. Campbell	,,
A Suggestion for the Explanation of the Stationary Radiant-points of Meteors. By H. H. Turner, M.A., F.R.S.—Remarks on the Paper by Prof. H. Turner; together with Another Suggested Explanation of Stationary Radiant-Points of Meteors. By Prof. A. S. Herschel, M.A., D.C.L., F.R.S.	Authors.
"Perturbations of the Leonids." By S. Johnstone Stoney, M.A., D.Sc., F.R.S.; and A. M. W.	

Downing, M.A., D.Sc., F.R.S.	Authors.
Ephemerides of Two Situations in the Leonid Stream. By the same.	,,
Stellar Photographs	Dr. Max Wolf.
Report of the Medical Officer of Health for the County Palatine of Lancaster, 1898.	Edward Sergeant, M.D.
Report of the Medical Officer of Health for the Borough of Darwen.....	F. G. Haworth, M.B.
The British Journal of Photography ...	The Editor.
Indian Meteorological Memoirs, Vol. VI.,Parts iv. and v.; Vol. X., Parts ii., iii., and iv.; Vol. XI., Part i. By John Eliot, M.A., F.R.S., etc.	Met. Office, Calcutta.
Report on the Administration of the Meteorological Department of the Government of India. By the same	,,
Monthly Weather Review, 1898-99. By the same	,,
Annual Summary, 1898. By the same.	,,
Report on the Madras Observatory for 1898-99	Madras Observatory.
Report of the Government Astronomer for the Colony of Natal, 1898 ...	
Report of the Condition and Progress of the G. V. Juggarow Observatory, 1897	Natal Observatory.
Notes on the Meteorology of Vizagapatam. Parts I. and II. By W. A. Bion	Vizagapatam Obs.
Observations made at the Magnetical and Meteorological Observatory at Batavia. Vol. xx., 1897	,,
Rainfall in the East Indian Archipelago, 1897	Batavia Observatory.
Brief Sketch of the Meteorology of the Bombay Presidency for 1898-99.	Bombay Observatory.
Magnetical and Meteorological Observations made at the Government Observatory, Bombay, 1897	,,
Monthly and Annual Results of Meteorological Observations taken at St. Xavier's College Observatory, Calcutta	College Observatory.
Report of Her Majesty's Astronomer at the Cape of Good Hope, 1898	Royal Obs., Cape.
Independent Day-Numbers for the year 1901, as used at the Royal Observatory, Cape of Good Hope	,,

Mauritius Magnetical Reductions, from 1875 to 1890, under the Direction of C. Meldrum, M.A., etc.; and from 1875—1897, by T. F. Claxton, F.R.A.S.	Royal Obs., Cape.
Observations and Researches made at the Hong Kong Observatory in 1898. By W. Doberck	Hong Kong Obs.
Record of Results of Observations in Meteorology and Terrestrial Magnetism, made at the Melbourne Observatory and other Localities in the Colony of Victoria, Australia. By Pietro Baracchi	Melbourne Observatory.
Cloud Observations in Victoria. By the same	,,
Thirty-third Report of the Board of Visitors to the Observatory, 1898-99	,,
Meteorological Observations made at the Perth Observatory and other places in Western Australia in 1897-98. By W. Ernest Cooke, M.A.	Perth Observatory.
Meteorological Observations made at the Adelaide Observatory and other places in South Australia and the Northern Territory in 1896. By Sir Charles Todd ...	Adelaide Observatory.
Results of Rain, River, and Evaporation Observations made in New South Wales, 1896-97. With Maps and Diagrams. By H. C. Russell, B.A., C.M.G., F.R.S., etc.	Sydney Observatory.
Report of Mr. Tebbutt's Observatory, The Peninsula, Windsor, New South Wales, 1898. By John Tebbutt	Tebbutt's Observatory.
The Department of Agriculture Monthly Weather Review, 1898-99 ...	Weather Bureau, Washington.
Pilot Charts of the North Atlantic Ocean, 1898-99	U. S. Hydrographic Office.
Report of the Superintendent of the United States Naval Observatory for the Fiscal Year ending June 30th, 1898	U. S. Naval Obs.
Memoirs of the National Academy of Sciences, Washington. Vol.	

viii.	U. S. National Academy.
Catalogue of 621 Stars. Prepared by Prof. T. H. Safford	Williams College.
Hourly Meteorological Readings at the New York Meteorological Observatory, 1898-99	Central Park Obs.
The Yerkes Observatory of the University of Chicago. Bulletins Nos. 7, 8, 9, 10 and 11	Yerkes Observatory.
Report for the year 1898-99. Presented by the Board of Managers of the Observatory of Yale University to the President and Fellows	Yale University.
Publications of the Cincinnati Observatory, No. 14: Catalogue of 2030 Stars for the Epoch 1895. By Jermain G. Porter, A.M.Ph.D.	Cincinnati University.
Results of Observations with the Zenith Telescope of the Flower Astronomical Observatory. By Charles L. Doolittle	Pennsylvinnia Uni.
Peruvian Meteorology 1888—1890. Compiled by Solon I. Bailey, under the direction of Edward C. Pickering	Harvard College Uni.
Progress of Experiments with Kites during 1897-98 at Blue Hill Observatory. By S. P. Fergusson.	,,
Studies of Cyclonic and Anticyclonic Phenomena with Kites. By H. Helm Clayton	,,
Sun-Spot Drawings made at the Georgetown College Observatory in 1850. By Father Benedict Sestini, S.J.	Georgetown College Observatory.
Toronto General Meteorological Register for the year 1898	Toronto Observatory.
Monthly Weather Review 1898-99	,,
Report of the Meteorological Service of Canada, 1896. Vols. i., ii. ...	Marine and Fisheries Dept.
Annales de l'observatoire de Nice Tome I. Atlas. Par M. Perrotin	L'Observatoire.
Bulletin Mensuel du Bureau Central Météorologique de France 1898-99. Par E. Mascart	,,
Rapport Annuel sur l'état de l'observatoire de Paris pour l'année 1898. Par MM. Loewy	,,
Annuaire de l'observatoire Municipal	

de Paris, dit observatoire de Montsouris, pour l'année 1899 ..	L'Observatoire.
Annales de l'observatoire Météorologique, Physique et Glaciaire du Mont Blanc. Par J. Vallot. Tome III.	,,
Bulletin Mensuel du Magnétisme Terrestre de l'observatoire Royal de Belgique. Par L. Niesten ...	,,
Bulletin des Observations Météorologiques Ve Année 1898, l'observatoire St. Louis, Jersey	,,
Bulletin Mensuel de l'observatoire Météorologique de l'université d'Upsal. Vol. xxx., 1898. Par D. H. Hildebrand Hildebrandsson	,,
Observations et Mesures de La Suède iii. Observations Directes des Nuages. Par le même	,,
Annales de l'observatoire National d' Athènes. Tome i. Par Démétrius Eginitis	,,
Annales de l'observatoire Physique Central. I., II., 1897. Par M. Rykatchew	,,
Bulletin Mensuel de l'observatoire de Zi-Ka-Wei. Tome xxii. 1896.	,,
Observations faites à l'observatoire météorologique de l'université Impériale de Moscow, 1896	L'Universite.
Bulletin de l'observatoire météorologique de l'Université de Kazan.	,,
Exploration Internationale des Régions Polaires 1882-83 et 1883-84. Observations faites aux Stations de Sodankylä et de Kultala. Par Selim Lemström et Ernest Biese. Société des Sciences de Finlande	Société de Sciences.
Observations Météorologiques Suédoises. Vol. 35, 1893. Publiées par L'Academie Royale des Sciences de Suède	L'Academie Royale.
Annuaire de la Société Météorologique de France. Tome Quarante-Sixième, 1898	La Société.
Recherches sur l'emploi de la Photographie Stellaire à la détermination des Parallaxes des Etoiles Fixes. Par Osten Bergstrand ...	L'Auteur.
Région b-f. du Spectre Solaire, dessinée par le Chanoine Eugéne	

Sprée	L'Auteur.
Vie Physique de Notre Planète, devant les lumières de la Science Contemporaine. Par A. Klossovsky	,,
Les Variations de la Température de L'Air dans les Tourbillons Atmosphériques et leur Véritable cause. Par R. R. Marc Dechevrens, S.J.	,,
La Navigation à Vapeur sur le haut Yang-tsé. Par le même.	,,
L'Interrupteur. Par R. P. J. D. Lucas, S.J.	,,
Note sur la Diffusion Cosmique de Vanadium. Par M. B. Hasselberg	,,
Beobachtungen des Meteorologischen Observatoriums der Universität Insbruck im Jahre 1898	Observatorium.
Ergebnisse der Meteorologischen Beobachtungen im Reichsland Elsass-Lothringen im Jahre 1896 Von Dr. Hugo Hergesell	,,
Publication des Astrophysikalischen Observatoriums zu Potsdam. Dreizehnter Band-Photographische Himmelskarte. Band I. Herausgegeben Vom Director H. C. Vogel	Sternwarte.
Publicationem der v. Küffner'schen Sternwarte in Wien. Herausgegeben Von Dr. Leo de Ball. V. Band	,,
Annalen der Sternwarte in Leiden Herausgegeben Von Dr. H. G. Van de Sande Bakhuyzen Siebenter Band	,,
Thätigkeit der Manora Sternwarte im Jahre 1896. Von Leo Brenner	
Veröffentlichungen des Hydrographischen Amtes der Kaiserlichen und Königlichen Kriegs-Marine in Pola. Gruppe II. III. Band. Gruppe III. II. Heft. Gruppe IV. II. Heft	,,
Meteorologische Termin-Beobachtungen in Pola, Sebenico und Teodo 1898-99	,,
Jahrbuch des Norwegischen Meteorologischen Instituts für 1898. Von Dr. H. Mohn	Institut.
Jahrbücher der K. K. Central-Anstalt	

für Meteorologie und Erdmagnetismus. Jahrgang 1895, 96, und 98	Institut.
Bericht über die Thätigkeit im Königl-Sächsischen Meteorologischen Institut für das Jahr 1896. Von Prof. Dr. Paul Schreiber	,,
Ergebnisse der Meteorologischen Beobachtungen an der Station I. Ordnung Chemnitz im Jahre 1897. Von Demselben.	,,
Ergebnisse der Meteorologischen Beobachtungen an 11 Stationem II. Ordnung im Jahre 1897. Von Demselben	,,
Veröffentlichungen Instituts. Ergebnisse der Beobachtungen an den Stationem II. und III. Ordnung im Jahre 1894. Heft III. Von Wilhelm von Bezold	,,
Ergebnisse der Meteorologischen Beobachtungen in Potsdam im Jahre 1897. Von Demselben	,,
Ergebnisse der Magnetischen Beobachtungen in Potsdam im Jahre 1897 und 1898. Von Demselben	,,
Ergebnisse der Beobachtungen an den Stationen II. und III. Ordnung im Jahre 1898 Heft I.-II. Von Demselben	,,
Bericht über die Thätigkeit des Königlich Preussischen Meteorologischen Instituts im Jahre 1898. Von Demselben	,,
Die Venus-Durchgänge 1874 und 1882. Bericht über die Deutschen Beobachtungen im Auftrage der Commission für die Beobachtungen des Venus-Durchgangs. Erster Band.. Herausgegeben Von A. Auwers	Die Commission.
Feier zur Einweihung des newen Kuppelbaus und des Grossen Refractors des Königlichen Astrophsyikalischen Observatoriums auf dem Telegraphenberge bei Potsdam a.m. 26 August 1899. Von Prof. Dr. H. C. Vogel	Verfasser.
Astrophysikalisches Observatorium Potsdam. Von Demselben	,,
Meteoren den 25 November 1897. Von Tryggve Rubin	,,

Regenkarte der Provinz Schlesien. Von Prof. Dr. G. Hellmann ...	Verfasser.
Astronomische Mitteilungen. Von A. Wolfer. 1898-99	,,
Ergänzungen zu meinem magnetischen Reisetheodolith behufs unabhängiger absoluter Messungen der Horizontalintensität. Von H. Wild	,,
Uber die Möglichkeit, Vollständige Magnetische Observatorien ganz oberirdisch und in einem Gebäude cinzurichten. Completes stoffs. Von Demselben	,,
Untersuchungen über die Spectra der Metalle im Electrischen Flammenbogen. I. Spectrum des Chroms. V. Spectrum des Vanads. Von B. Hasselberg ...	,,
Ueber das Linienspectrum des Sauerstoffs. Von Demselben	,,
Zur Spectroskopie des Wasserstoffs Von Demselben.	,,
Zur Spectroskopie der Verbindungen. Spectrum der Thonerde. Von Demselben	,,
Ueber das durch Electrische Erregung erzeugte Leuchten der Gase bei niedriger Temperatur. Von Demselben	,,
Ueber die Spectra der Cometen. Von Demselben.	,,
Untersuchungen über das zweite Spectrum des Wasserstoffs. Von Demselben	,,
Die Meteorologie der Sonne und das Wetter im Jahre 1889 zugleich Wetterprognose für das Jahre 1899. Von Prof. K. W. Zenger.	,,
Die Elemente des Erdmagnetismus für die Epochen 1600, 1650, 1700, 1780, 1842, and 1885, and ihre Saecularen Aenderungen. "Allgemeine Theorie des Erdmagmagnetismus." Von Dr. H. Fritsche.	,,
Sonnenschein und Bewölkung In Kalocsa. Von F. J. Fényi, S.J. ...	,,
Ueber directe Photographirung der Sonnen-Protuberanzen. Von Fr. C., Braun, S.J.	,,
Magnetische Beobachtungen an der Deutschen Ostseeküste; west-	

licher Teil; Schleswig-Holstein, Mecklenburg und Darsser-Ort, angestellt i.d. Jn. 1897 und 1898 Von A. Schück	Verfasser.
Die Vorläufer des Copernicanischen Weltsystems. Von P. Adolf Müller, S.J.	,,
Die Erscheinungen von Ebbe und Fluth im Zusammenhang mit dem Copernicanischen Weltsystem. Von Demselben	,,
Boletín Mensual del Observatorio de Manila 1898-99. Por el P. José Algué, S.J.	Observatorio.
Baguios ó Ciclones Filipinos. Estudio Teórico-Practico. Por el mismo.	
Las Nubes en el Archipiélago Filipino. Por el mismo.	,,
Anales del Instituto y Observatorio de Marina de San Fernando. Seccion 1a. 1893. Seccion 2a 1897-1898.	,,
Almanaque Naútico. Para el año 1901 Por el mismo	,,
Boletin Mensual del Observatorio-Meteorologico de Leon 1898-99 ...	,,
Boletín Mensual del Observatorio Meteorológico de México 1898-99 ..	,,
Observaciones Magnéticas y Meteorológicas del Observatorio del Colegio de Belen de la Compañia de Jesus en la Habana 1898	,,
Boletin Mensual del Observatorio-Meeorológico del Seminario Conciliar de Durango. México 1899.	,,
Boletín Mensual Meteorológico del Colegio de San Juan Nepomuceno. Saltillo. México, 1898-99...	,,
Observaciones Meteorológicas del Colegio Católico del Sagrado Corazón de Jesus. Puebla 1898	,,
Boletín Mensual Meteorológico y Agrícola del Observatorio Central del Estado de Veracruz. Llave. 1898-99	,,
Observaciones Meteorológicas hechas en el Colegio Máximo de la Compañia de Jesus en Oña Provincia de Burgos 1897-1898	,,
Boletin del Observatorio Astronómico Nacional de Tacubaya. Tomo II., Núm 5	,,

Observaciones Meteorológicas practicadas en el Observatorio Astronómico Nacional de Tacubaya 1895.	Observatorio.
El Catorce de Noviembre. Las lluvias de Leonidas y los Ciclos Astronómicos. Por Manuel M. Miranda y Marron.	,,
La Erupcion del Volcán Mayón en los dias 25 y 26 de Junio de 1897. Por José Coronas, S.J.	,,
Memórias Y Revista de la Sociedad Científica "Antonio Alzate," 1898-99	La Sociedad.
Osservazioni Meteoriche fatte nel R. Osservatorio di Capodimonte 1897-98	Osservatorio.
Riassunti Decadici e Mensili 1898, nel medesimo. Dal medesimo	,,
Variazioni della declinazione Magnetica ca negli anni 1894-95-96-97. Nel medesimo. Dal medesimo	,,
Variazioni della declinazione Magnetica negli anni 1894-95-96-97. Nel medesimo	,,
Rapporto Annuale dello I. R. Osservatorio Astronomico-Meteorologico di Trieste. per l'anno 1896 ...	,,
Bolletino Mensuale dell'Osservatorio Centrale del Real Collegio Carlo Alberto in Moncalieri. 1898-99...	,,
Per la Storia della Meteorologia in Italia Primi Appunti del P. Giuseppe Boffito, B.A.	Il Autore.
Annuario Storico Meteorologico Italiano. Vol. I.-1898. Dal medesimo	Autor.
Studi sul molo rotatorio del Pianeta Venere. Dal P. Adolfo Müller, S.J.	,,
Il Principio del Nuovo Secolo. Dal medesimo	,,
Sul diametro Solare. Memoria di A. D. Legge et A. Prosperi.	Autori.
Buletinul Observatiunilor Meteorologice din România. Anul VII. 1898.	Institutul Meteorologic.

APPENDIX

RESULTS

OF

METEOROLOGICAL OBSERVATIONS

TAKEN AT

ST. IGNATIUS' COLLEGE, MALTA

BY THE

REV. J. F. DOBSON, S.J.

1899.

ST. IGNATIUS' COLLEGE,
MALTA.

Lat. 35° 55′N. Long. 14° 29′E.

Barometer Readings reduced to 32° F. at sea level.

METEOROLOGICAL REPORT.
JANUARY, 1899.

Results of Observations taken during the Month.		Mean for the last 16 years.
Mean Reading of the Barometer....inches	30·143	30·051
Highest ,, on the 21st ,,	30·449	30·427
Lowest ,, on the 31st ,,	29·620	29·583
Range of Barometer Readings..... ,,	0·829	0·844
Highest Reading of a Max. Therm on the 29th	65·5	65·0
Lowest Reading of a Min. Therm. on the 7th&8th	43·2	41·3
Range of Thermometer Readings	22·3	23·7
Greatest Range in 24 hours on the 29th.....	19·8	18·3
Mean of all the Highest Readings	60·9	59·1
Mean of all the Lowest Readings	49·4	48·6
Mean Daily Range	11·5	10·5
Mean Temperature (deduced from Max.&Min)	54·4	53·2
Mean Temperature (deduced from Dry Bulb)	54·4	52·9
Adopted Mean Temperature.....	54·4	53·1
Mean Temperature of Evaporation	50·1	48·6
Mean Temperature of Dew Point	47·1	45·5
Mean lastic force of Vapour..... inches	0·324	0·305
Mean weight of Vapour in a cub.ft.of air grains	3·6	3·5
Mean additional weight required for saturation,,	0·9	0·9
Mean degree of Humidity	80	80
Mean weight of a cubic foot of air .... grains	542·2	542·3
Fall of Rain..... inches	1·464	3 467
Number of days on which Rain fell	11	13
Mean amount of Cloud (an overcast sky=10)	4·3	5·4
Total number of miles of wind indicated	6929	8451
Mean Velocity of Wind per hour .....miles	9·3	11·4

St. Ignatius' College, Malta.

FEBRUARY, 1899.

Results of Observations taken during the Month		Mean for the last 16 years.
Mean Reading of the Barometer..... inches	30·086	30·038
Highest ,, on the 9th ,,	30·386	30·341
Lowest ,, on the 3rd ,,	29·581	29·625
Range of Barometer Readings ..... ,,	0·805	0·716
Highest Reading of a Max. Therm. on the 1st	66·1	66·8
Lowest Reading of a Min. Therm. on the 6th	44·0	41·3
Range of Thermometer Readings	22·1	25·5
Greatest Range in 24 hours on the 6th	18·5	19·2
Mean of all the Highest Readings.....	61·5	60·2
Mean of all the Lowest Readings	50·6	49·3
Mean Daily Range	10 9	10·9
Mean Temperature (deduced from Max & Min)	55·1	53·7
Mean Temperature (deduced from Dry Bulb)	55·3	54·0
Adopted Mean Temperature	55·2	53·9
Mean Temperature of Evaporation.....	55·5	49·6
Mean Temperature of Dew Point	49·4	46 8
Mean elastic force of Vapour .....inches	0·353	0·320
Mean weight of Vapour in a cub. ft. of air grains	4·0	3·6
Mean additional weight required for saturation,,	0 6	0·8
Mean degree of Humidity	85	81
Mean weight of a cubic foot of air ....grains	542 7	541·0
Fall of rain .....inches	1·519	2·044
Number of Days on which rain fell	9	9
Mean amount of Cloud (an overcast sky=10)	3·3	5·1
Total number of miles of Wind indicated ...	7000	7992
Mean Velocity of Wind per hour .....miles	10·3	11·9

St. Ignatius' College, Malta.

MARCH, 1899.

Results of Observations taken during the Month.		Mean for the last 16 years.
Mean Reading of the Barometer .....inches	30·023	29·991
Highest ,, on the 28th ,,	30·396	30·338
Lowest ,, on the 24th ,,	29·567	29·518
Range of Barometer Readings ..... ,,	0·829	0·820
Highest Reading of Max. Therm. on the 23rd	76·9	74·1
Lowest Reading of a Min. Therm. on the 29th	44·9	43·3
Range of Thermometer Readings	32·0	30·8
Greatest Range in the 24 hours on the 29th ..	21·9	22·5
Mean of all the Highest Readings	63·8	63·3
Mean of all the Lowest Readings	51·9	51·0
Mean Daily Range	11·9	12·3
Mean Temperature (deduced from Max. & Min.)	57·2	56·3
Mean Temperature (deduced from Dry Bulb)	56·2	55·4
Adopted Mean Temperature	56·7	55·9
Mean Temperature of Evaporation	52·6	51·8
Mean Temperature of Dew Point	49·5	48·6
Mean elastic force of Vapour .....inches	0·355	0·343
Mean weight of Vapour in a cub. ft. of air grains	3·2	3·9
Mean additional weight required for saturation,,	1·0	1·1
Mean degree of Humidity	80	79
Mean weight of a cubic foot of air ....grains	536·9	537·2
Fall of rain .....inches	0·839	1·040
Number of days on which rain fell.....	7	7
Mean amount of Cloud (an overcast sky=10)	2·8	4·6
Total number of miles of wind indicated.....	9120	8114
Mean Velocity of Wind per hour .....miles	12·3	10·9

St. Ignatius' College, Malta.

APRIL, 1899.

Results of Observations taken during the Month.		Mean for the last 16 years
Mean Reading of the Barometer .....inches	30·017	29·951
Highest ,, on the 3rd ,,	30·263	30·262
Lowest ,, on the 13th ,,	29·655	29·546
Range of Barometer Readings ,,	0·608	0·716
Highest Reading of a Max. Therm. on the 16th	77·0	76·6
Lowest Reading of a Min. Therm. on the 3rd	48·4	47·8
Range of Thermometer Readings	28·6	28·8
Greatest Range in 24 hours on the 15th	22·7	21·5
Mean of all the Highest Readings.....	67·8	67·3
Mean of all the Lowest Readings.....	54·8	54·3
Mean Daily Range.....	13·0	13·0
Mean Temperature (deduced from Max. & Min.)	60·3	59·8
Mean Temperature (deduced from Dry Bulb)	59·6	59·3
Adopted Mean Temperature.....	60·0	59·6
Mean Temperature of Evaporation	55·7	55·5
Mean Temperature of Dew Point	52·2	52·2
Mean elastic force of Vapour .....inches	0·391	0·391
Mean weight of Vapour in a cub. ft. of air grains	3·9	4·4
Mean additional weight required for saturation,,	1·9	1·3
Mean degree of Humidity	77	78
Mean weight of a cubic foot of air... grains	533·1	531·9
Fall of Rain .....inches	0·110	1·044
Number of days on which rain fell	3	6
Mean amount of Cloud (an overcast sky=10)	2·3	4·7
Total number of miles of wind indicated	8635	8406
Mean Velocity of Wind per hour .....miles	12·0	11·7

St. Ignatius' College, Malta.

MAY, 1899.

Result of Observations taken during the Month.		Mean for the last 16 years
Mean Reading of the Barometer..... inches	29·977	29·981
Highest ,, on the 31st ,,	30·230	30·178
Lowest ,, on the 6th ,,	29·715	29·627
Range of Barometer Readings..... ,,	0·515	0·551
Highest Reading of a Max. Therm. on the 25th	84·3	81·7
Lowest Reading of a Min. Therm. on the 4th	54·3	53·2
Range of Thermometer Readings	30·0	28·5
Greatest Range in 24 hours on the 24th	21·0	23·4
Mean of all the Highest Readings.....	74·7	72·4
Mean of all the Lowest Readings	60·1	58·4
Mean Daily Range	14·6	14·0
Mean Temperature (deduced from Max. & Min.)	66·4	64·3
Mean Temperature (deduced from Dry Bulb)..	65·4	63·7
Adopted Mean Temperature	65 9	64·0
Mean Temperature of Evaporation.....	61·4	60·0
Mean Temperature of Dew Point	58 0	56·4
Mean elastic force of Vapour .....inches	0·482	0·455
Mean weight of Vapour in a cub. ft. of air grains	5·3	5 0
Mean additional weight required for saturation,,	1·7	1·7
Mean degree of Humidity	75	76
Mean weight of a cubic foot of air.... grains	525·8	526·9
Fall of Rain .....inches	0	0·673
Number of days on which Rain fell	0	4
Mean amount of Cloud (an overcast sky=10)	1·8	4·0
Total number of miles of Wind indicated	6510	7511
Mean Velocity of Wind per hour	8·7	10·1

St. Ignatius' College, Malta.

JUNE, 1899.

Results of Observations taken during the Month.		Mean for the last 16 years.
Mean Reading of the Barometer.....inches	30·017	30·017
Highest ,, on the 6th ,,	30·221	30·172
Lowest ,, on the 22nd ,,	29·788	29·801
Range of Barometer Readings..... ,,	0·433	0·371
Highest Reading of a Max. Therm. on the 11th	87·7	90·9
Lowest Reading of a Min. Therm. on the 1st	58·8	58·4
Range of Thermometer Readings	28·9	32 5
Greatest range in 24 hours on the 9th	20·1	25·7
Mean of all the Highest Readings	79·7	80 8
Mean of all the Lowest Readings	65·1	64·8
Mean Daily Range	14·6	16·0
Mean Temperature (deduced from Max & Min.)	71·7	72·0
Mean Temperature (deduced from Dry Bulb)	70·5	71·3
Adopted Mean Temperature.....	71·1	71·6
Mean Temperature of Evaporation	65·5	66 0
Mean Temperature of Dew Point	61·4	61·8
Mean elastic force of Vapour .....inches	0·545	0·552
Mean weight of Vapour in a cub.ft. of air grains	5·9	6·0
Mean additional weight required for saturation ,,	2·4	2 4
Mean degree of Humidity	73	72
Mean weight of cubic foot of air ....grains	520·5	519·7
Fall of Rain .....inches	0·546	0·060
Number of days on which Rain fell	4	1
Mean amount of Cloud (an overcast sky=10)	2·6	2·1
Total number of miles of Wind indicated	7200	6246
Mean Velocity of Wind per hour.....miles	10·0	8·7

St. Ignatius' College, Malta.

JULY, 1899.

Results of Observations taken during the Month.		Mean for the last 16 years.
Mean Reading of the Barometer .....inches	30·036	30·003
Highest ,, on the 20th ,,	30·157	30·142
Lowest ,, on the 13th ,,	29·855	29·835
Range of Barometer Readings..... ,,	0·302	0·307
Highest Reading of a Max. Therm. on the 25th	94·6	97·7
Lowest Reading of a Min. Therm. on the 3rd	59·0	64·7
Range of Thermometer Readings	35·6	33·0
Greatest Range in 24 hours on the 24th	23·6	26·9
Mean of all the Highest Readings	84·4	87·0
Mean of all the Lowest Readings.....	68·1	69·8
Mean Daily Range.....	16·3	17·2
Mean Temperature(deduced from Max.& Min.)	75·7	77·9
Mean Temperature (deduced from Dry Bulb)	74·7	76·9
Adopted Mean Temperature	75·2	77·4
Mean Temperature of Evaporation	68·3	70·4
Mean Temperature of Dew Point	63·4	65·7
Mean elastic force of Vapour..... inches	0·584	0·634
Mean weight of Vapour in a cub.ft.of air grains	6·0	6·7
Mean additional weight required for saturation,,	3 1	3·4
Mean degree of Humidity	67	67
Mean weight of a cubic foot of air.... grains	516·4	513·4
Fall of Rain..... inches	0·0	0·034
Number of Days on which rain fell.....	0	1
Mean amount of Cloud (an overcast sky=10)	0·6	1·0
Total number of miles of wind indicated....	6890	5635
Mean Velocity of Wind per hour .....miles	9 3	7·6

St. Ignatius' College, Malta.

AUGUST, 1899.

Results of Observations taken during the Month.		Mean for the last 16 years.
Mean Reading of the Barometer .....inches	30·051	30·013
Highest ,, on the 15th ,,	30·211	30·159
Lowest ,, on the 10th ,,	29·908	29·867
Range of Barometer Readings ..... ,,	0·303	0·292
Highest Reading of a Max. Therm. on the 9th	92·5	96·2
Lowest Reading of a Min. Therm. on the 25th	66·2	65·5
Range of Thermometer Readings.....	26·3	30·7
Greatest Range in 24 hours on the 9th	21·2	25·7
Mean of all the Highest Readings.....	86·6	87·0
Mean of all the Lowest Readings.....	70·2	70·9
Mean Daily Range	16·4	16·1
Mean Temperature (deduced from Max.& Min.)	77·6	78·2
Mean Temperature (deduced from Dry Bulb)	77·7	77·9
Adopted Mean Temperature	77·7	78·1
Mean Temperature of Evaporation	70·7	71·3
Mean Temperature of Dew Point	65·7	66·9
Mean elastic force of Vapour .....inches	0·633	0·657
Mean weight of Vapour in a cub.ft.of air grains	6·8	7·0
Mean additional weight required for saturation,,	3·5	3·3
Mean degree of Humidity	66	69
Mean weight of a cubic foot of air..grains	513·5	512·6
Fall of Rain ..... inches	0·0	0·095
Number of days on which Rain fell	0	1
Mean amount of Cloud (an overcast sky=10)	0·7	1.1
Total number of miles of wind indicated....	4235	5438
Mean Velocity of Wind per hour ..... miles	5·7	7·3

St. Ignatius' College, Malta.

SEPTEMBER, 1899.

Results of Observations taken during the Month.		Mean for the last 16 years.
Mean Reading of the Barometer .... inches	30·012	30·061
Highest ,, on the 5th	30·201	30·248
Lowest ,, on the 17th	29·792	29·830
Range of Barometer Readings	0·409	0·418
Highest Reading of a Max. Therm. on the 3rd	91·5	92·6
Lowest Reading of a Min. Therm. on the 28th	61·7	62·9
Range of Thermometer Readings	29·8	29·7
Greatest Range in 24 hours on the 3rd	21 0	23·8
Mean of all the Highest Readings	83·7	83·4
Mean of all the Lowest Readings	68·5	70·0
Mean Daily Range	15·2	13·4
Mean Temperature (deduced from Max. & Min.)	75 2	75·3
Mean Temperature (deduced from Dry Bulb)	74·1	74·7
Adopted Mean Temperature	74·7	75·0
Mean Temperature of Evaporation	70·2	69·2
Mean Temperature of Dew Point	67·2	65 5
Mean elastic force of Vapour ..... inches	0·666	0 623
Mean weight of Vapour in a cub.ft.of air grains	7·2	6·7
Mean additional weight required for saturation,,	1·9	2·6
Mean degree of Humidity	79	72
Mean weight of a cubic foot of air....grains	516·2	516·9
Fall of Rain ..... inches	1·872	1·041
Number of days on which Rain fell	7	4
Mean amount of Cloud (an overcast sky=10)	1·4	2·4
Total number of miles of Wind indicated	5155	5597
Mean Velocity of Wind per hour.....miles	7·2	7·8

St. Ignatius' College, Malta.

OCTOBER, 1899.

Results of Observations taken during the Month.		Mean for the last 16 years.
Mean Reading of the Barometer .....inches	30·142	30·042
Highest ,, on the 22nd ,,	30·371	30·263
Lowest ,, on the 19th ,,	29·927	29 737
Range of Barometer Readings	0·444	0·526
Highest Reading of a Max. Therm. on the 1st	83·1	87·5
Lowest Reading of a Min, Therm. on the 11th	58·1	55·8
Range of Thermometer Readings	25·0	31·7
Greatest Range in 24 hours on the 2nd	17·5	19·7
Mean of all the Highest Readings.....	77·3	76 7
Mean of all the Lowest Readings	65·0	57·8
Mean Daily Range	12·3	18 9
Mean Temperature (deduced from Max.&Min.)	70·3	69·7
Mean Temperature from Dry Bulb.....	69 6	66·8
Adopted Mean Temperature.....	70·0	68·3
Mean Temperature of Evaporation	66·3	64·6
Mean Temperature of Dew Point	63·8	61·0
Mean elastic force of Vapour .....inches	0·613	0·542
Mean weight of Vapour in a cub. ft. of air grains	6·5	5·9
Mean additional weight required for saturation ,,	1·3	1·8
Mean degree of Humidity	82	77
Mean weight of a cubic foot of air ....grains	523·5	523·0
Fall of Rain . .....inches	2·880	3 087
Number of days on which Rain fell	7	7
Mean amount of Cloud (an overcast sky= 10)	3·7	4·3
Total number of miles of Wind indicated....	4900	6733
Mean Velocity of Wind per hour.....miles	6 6	9·1

St. Ignatius' College, Malta.

NOVEMBER, 1899.

Results of Observations taken during the Month.		Mean for the last 16 years.
Mean Reading of the Barometer.....inches	30·180	30·076
Highest ,, on the 25th ,,	30·388	30 318
Lowest ,, on the 17th ,,	29·533	29·713
Range of Barometer Readings ..... ,,	0·855	0·605
Highest Reading of a Max. Therm. on the 8th	76·1	76·8
Lowest Reading of a Min. Therm. on the 18th	49·1	50·3
Range of Thermometer Readings	27·0	26·5
Greatest Range in 24 hours on the 12th	17·9	18·4
Mean of all the Highest Readings	68·7	69·0
Mean of all the Lowest Readings	57·7	57·8
Mean Daily Range	11·0	11·2
Mean Temperature (deduced from Max.& Min.)	62·0	62·5
Mean Temperature (deduced from Dry Bulb)	62·2	61·8
Adopted Mean Temperature	62·1	62·2
Mean Temperature of Evaporation	58·2	57·7
Mean Temperature of Dew Point	55·2	54·4
Mean elastic force of Vapour ..... inches	0·436	0·423
Mean weight of Vapour in a cub. ft. of air grains	4·9	4·8
Mean additional weight required for saturation,,	1 2	1·3
Mean degree of Humidity	80	79
Mean weight of a cubic foot of air.... grains	533·3	531·8
Fall of rain ..... inches	4·650	3·240
Number of days on which Rain fell.....	11	11
Mean amount of Cloud (an overcast sky=10)	3·9	5·2
Total number of miles of wind indicated....	6095	6672
Mean Velocity of Wind per hour.....miles	8·5	9·3

St. Ignatius' College, Malta.

DECEMBER, 1899.

Results of Observations taken during the Month.		Mean for the last 16 years.
Mean Reading of the Barometer .... inches	29·976	30·050
Highest ,, on the 5th ,,	30·363	30·403
Lowest ,, on the 14th ,,	29·509	29·586
Range of Barometer Readings..... ,,	0·854	0·817
Highest Reading of a Max. Therm. on the 21st	67·7	68·5
Lowest Reading of a Min. Therm. on the 5th	46·7	43·7
Range of Thermometer Readings	21·0	24·8
Greatest Range in 24 hours on the 5th	17·8	17·5
Mean of all the Highest Readings	63·2	61·8
Mean of all the Lowest Readings	52·5	52·2
Mean Daily Range.....	10·7	9·6
Mean Temperature (deduced from Max.&Min.)	57·1	56·4
Mean Temperature (deduced from Dry Bulb)	57·4	56·0
Adopted Mean Temperature	57·2	56·2
Mean Temperature of Evaporation	53·3	51·9
Mean Temperature of Dew Point	50·2	48·7
Mean Elastic force of Vapour .....inches	0·364	0·344
Mean weight of Vapour in a cubic ft. of air grains	3·9	3·9
Mean additional weight required for saturation,,	1·1	1 1
Mean degree of Humidity.....	79	79
Mean weight of a cubic foot of air .... grains	535·3	538·5
Fall of Rain .....inches	3·992	4·426
Number of days on which Rain fell.....	20	15
Mean amount of Cloud (an overcast sky=10)	5·4	5·8
Total number of miles of Wind indicated	8045	8287
Mean Velocity of Wind per hour .....miles	10·8	11·1

ST. IGNATIUS' COLLEGE, MALTA.

Summary of Observations, 1899.

Results of Observations taken during the Year.		Mean for the last 16 years.
Mean Reading of the Barometer .....inches	30·055	30·025
Highest ,, on January 21st ,,	30·449	30·509
Lowest ,, on December 14th ,,	29·509	29·374
Range of Barometer Readings ,,	0·940	1·135
Highest Reading of a Max. Therm. on July 25th	94·6	99·4
Lowest Reading of a Min. Therm. on Jan. 7th & 8th	43·2	40·3
Range of Thermometer Readings	51·4	59·1
Greatest Range in 24 hours on the 24th July..	23·6	28·7
Mean of all the Highest Readings	72·7	72·5
Mean of all the Lowest Readings.....	59·5	59·3
Mean Daily Range	13·2	13·2
Mean Temperature (deduced from Max. & Min.)	65·3	65·0
Mean Temperature (deduced from Dry Bulb)	64·7	64·4
Adopted Mean Temperature	65·0	64·7
Mean Temperature of Evaporation.....	60·3	59·8
Mean Temperature of Dew Point	56·9	56·1
Mean elastic force of Vapour .....inches	0·479	0·457
Mean weight of Vapour in a cub. ft. of air grains	5·1	5·1
Mean additional weight required for saturation.,	1·7	1·8
Mean degree of Humidity	77	76
Mean weight of a cubic foot of air.....grains	528·3	527·9
Total fall of rain in the year ..... inches	17·872	20·245
Number of days on which Rain fell.....	80	77
Mean amount of Cloud (an overcast sky=10)	3·5	3·8
Total number of miles of Wind indicated ..	80714	85080
Mean Velocity of Wind per hour.....miles	9·2	9·7

SINCE MAY, 1883.

The Maximum monthly mean height of the Barometer was in January, 1898, and was .....inches 30·347

The Minimum ,, ,, in January, 1886, and was 29·844

The Maximum yearly mean height of the Barometer was in1897, and was	inches	30·058
The Minimum ,, ,, in 1890, and was.....		29·996
The greatest monthly range of the Barometer was in January, 1886, and was	inches	1·201
The least ,, ,, in August, 1883, and was ,,		0·188
The highest reading of the Barometer was on January 29th, 1898, and was.....	inches	30·638
The lowest ,, ,, on January 17th, 1886, and was		29·155
Extreme range	inches	1·483
The highest temperature was on August 11th, 1896, and was		104·8
The lowest ,, ,, February 19th, 1895		34·2
The highest mean temperature of a month, was in August, 1885, and was		83·2
The lowest ,, ,, ,, February, 1891..		49·5
The greatest monthly mean weight of vapour in a cubic foot of air..... grains	August, 1885	7·9
The least ,, January and February, 1891, and was grs		3 0
The highest observed Dew point was on August 30th, 1885, and was		78·7
The lowest ,, ,, February 19th, 1895, and was		27·9
The greatest fall of rain in a month was in December, 1889, and was .....inches		8·952
The greatest number of days on which rain fell in one month	January. 1889.....	24
The greatest fall of rain in a year was in 1898, and was inches		29·178
The smallest ,, ,, ,, 1895 .... ,,		11·384
The greatest number of rainy days in a year was in 1894 and was		90
The least ,, ,, ,, ,, 1888		59
The highest temperature registered in sunshine was on the 15th July, 1897, and was.....		159·7
The lowest temperature registered on ground was on the 19th February, 1895, and was		31.7
The highest observed sea temperature was on the 5th August, 1887, and was.....		85·0
The lowest ,, ,, 30th January, 1895, and was		55·5
The smallest mean amount of cloud observed in one month was in August, 1890, and was		0·0
The greatest ,, ,, in January, 1894, and was		7·2

St. Ignatius' College, Malta.

NOTES FOR THE SEPARATE MONTHS.

January.

The Dew-point ranged between 36·6° on the 4th, and 53·6° on the 31st.

In Sunshine, the highest reading was 120·0° on the 11th.

On Ground, the lowest reading was 35·5° on the 7th.

The Sea has averaged 60·2°.

Thunderstorms passed on the 4th, and 13th.

Lightning was seen on the 12th.

Hail fell on the 4th.

Total Rainfall since last June 22·220 inches ; the average of 16 years, 14·796 inches.

February.

The Dew-Point ranged between 56 7° on the 18th and 33.6° on the 28th.

In Sunshine, the highest reading was 129·6° on the 25th.

On Ground, the lowest reading was 40·0 on the 6th.

The Sea has averaged 61·2°.

Lightning was seen on the 22nd and 23rd.

Total Rainfall since last June, 23·739 inches ; the average of 16 years, 16·840 inches.

St. Ignatius' College, Malta.

March.

The Dew-point ranged between 57·3° on the 11th, and 31·3° on the 26th.

In Sunshine, the highest reading was 133·9° on the 31st.

On Ground, the lowest reading was 39·9° on the 29th.

The Sea has averaged 62·0°.

Hail fell on the 26th.

Total Rainfall since last June 24·578 inches; the average of 16 years, 17·880 inches.

April.

The Dew-point ranged between 58·4° on the 17th, and 43·4° on the 8th.

In Sunshine, the highest reading was 136·6° on the 6th.

On Ground, the lowest reading was 42·5° on the 24th.

The Sea has averaged 63·0°.

Total Rainfall since last June 24·688 inches; the average of 16 years, 18·924 inches.

May.

The Dew-point ranged between 62·2 on the 4th and 48·7° on the 29th.

In Sunshine, the highest reading was 150·0° on the 25th.

On Ground, the lowest reading was 48·7° on the 4th.

The Sea has averaged 68·4°.

Lightning was seen on the 2nd.

Total Rainfall since last June 24·688 inches; the average of 16 years, 19·597 inches.

June.

The Dew-point ranged between 68·4° on the 22nd and 54·3° on the 23rd.

In Sunshine, the highest reading was 151·6° on the 14th.

On Ground, the lowest reading was 52·9° on the 1st.

The Sea has averaged 71·7°.

Thunderstorms passed on the 2nd, 3rd and 4th. Lightning was seen on the 19th.

Total Rainfall since last June 25·234 inches; the average of 16 years, 19·657 inches.

St. Ignatius' College, Malta.

July.

The Dew-point ranged between 69·3° on the 20th, and 53·2° on the 2nd.

In Sunshine, the highest reading was 147·5° on the 24th.

On Ground, the lowest reading was 57·7° on the 11th.

The Sea has averaged 77·0.

Thunderstorms passed on the 14th.

Lightning was seen on the 15th.

August.

The Dew-point ranged between 72·1° on the 22nd, and 52·5° on the 25th.

In Sunshine the highest reading was 149 5° on the 12th.

On Ground the lowest reading was 59·4° on the 28th.

The Sea has averaged 81·3°.

Lightning was seen on the 4th, 5th, and 6th.

September.

The Dew-point ranged between 75·9° on the 16th, and 56 8 on the 12th.

In Sunshine the highest reading was 146·3° on the 24th.

On Ground, the lowest reading was 55 1° on the 28th.

The Sea has averaged 77·8°.

Thunderstorms passed on the 17th, 24th and 26th.

Lightning was seen on the 10th, 13th, 22nd and 29th.

Hail fell on the 17th.

Total Rainfall since last June 1·872 inches; the average of 16 years 1·170 inches.

October.

The Dew-Point ranged between 69·2° on the 4th and 55·9° on the 12th.

In Sunshine, the highest reading was 138 6° on the 7th.

On Ground, the lowest reading was 53·1° on the 27th.

The Sea has averaged 74·0.

Thunderstorms passed on the 12th and 13th.

Lightning was seen on the 8th and 31st.

Total Rainfall since last June 4·752 inches; the average of 16 years, 4·257 inches.

St. Ignatius' College, Malta.

November.

The Dew-point ranged between 66·4° on the 8th, and 43·1° on the 18th.

In Sunshine, the highest reading was 132·9° on the 12th.

On Ground, the lowest reading was 44·6° on the 25th.

The Sea has averaged 70 4°.

Thunderstorms passed on the 1st, 14th, 17th, 20th, 21st, 22nd and 24th.

Lightning was seen on the 2nd, 3rd, 6th, 23rd and 30th.

Hail fell on the 21st.

Total Rainfall since last June 9·402 inches; the average of 16 years, 7·497 inches.

Several waterspouts, over sea and land, were seen close to this station on the 13th.

December.

The Dew-point ranged between 59·7°, on the 31st and 41 9° on the 17th.

In Sunshine, the highest reading was 123·8° on the 25th.

On Ground, the lowest reading was 39·8° on the 5th.

The Sea has averaged 64·5°.

Thunderstorms passed on the 1st, 2nd, 10th, 16th, 20th and 21st.

Lightning was seen on the 3rd, 4th, and 23rd.

Hail fell on the 1st, 2nd, 10th and 16th.

Total Rainfall since last June, 13·394 inches; the average of 16 years, 11·923 inches.

NOTES FOR THE YEAR.

The Dew-point ranged between 31·3° on the 26th March and 75·9° on the 16th September.

In Sunshine, the highest reading was 151·6° on the 14th June.

On Ground, the lowest reading was 35·5° on the 7th January.

The Sea has averaged 69·3°.

Thunderstorms passed on 24 days.

Lightning was seen on 23 days.

Hail fell on 8 days.

J. F. DOBSON, S.J.